DEPARTMENT OF TECHNOLOGY
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AUGUST 25, 1956
VOL. 151 — NO. 8

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

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Guaranteed Circulation This Issue
11,339 of Which 10,819 is Paid

"CALLING ALL CARS"

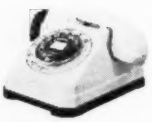
Protection of life and property has increased greatly through installations of mobile telephone service in many large cities. This protection will, no doubt, be adopted in smaller cities and towns within a few years.

MANAGEMENT • PLANT • TRAFFIC • COMMERCIAL • LEGAL • ACCOUNTING

YOU **CAN SELL** MORE
WITHOUT TYING YOUR

BEDROOMS:

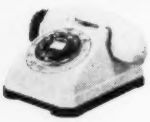
warm red, yellow, soft beige, ivory



DEN:

rich brown,
dignified gray

LIVING ROOM:



stylish green,
ivory, red

KITCHEN:

gay red, blue,
yellow or green

WORKSHOP:

two-fisted brown, blue

XUM

EXTENSIONS

MONEY UP IN INVENTORY!

To sell extension 'phones these days, you must offer a big choice of styles and mountings . . . But you don't want your money tied up in a warehouse full of instruments.

You can lick this problem easily with the Stromberg-Carlson line of instruments.

Choice? The finest: 34 possible combinations and your subscribers can't help losing their hearts to the modern beauty and comfortable "feel" of these instruments.

Inventory? At a minimum—because any Stromberg-Carlson "1543" series telephone, color or black, is interchangeable for wall or table installation. And the standard black instruments convert to 2-tone by simply adding a colored housing.

More good will and new revenue can be yours in the next month. Just call or write your Stromberg-Carlson office for help in launching your campaign for extensions and new 'phones. They'll supply you with free literature to help you sell, as well as speedy delivery of the instruments.

34 STYLES TO PICK FROM!

8 COLORS
(desk style or wall mounting)
16 CHOICES

8 2-TONE COLORS
(desk style or wall mounting)
16 CHOICES

1 BLACK TELEPHONE
(desk style or wall mounting)
2 CHOICES

} TOTAL 34 CHOICES

Television, do-it-yourself, and modern labor-saving devices are luring people to spend more time at home. Now you can add to this new era of home appreciation with these 8 decorator colors:

- olive green
- canary yellow
- chinese red
- french blue
- antique ivory
- chestnut brown
- desert beige
- dove gray

Solid color 'phones—or 2-tone combinations with contrasting black handsets, dials and cords. Colors for every room in the house!

STROMBERG-CARLSON COMPANY

A DIVISION OF GENERAL DYNAMICS CORPORATION

ROCHESTER 3, N. Y.

FLASHES AND PLUGS

PRACTICAL PRESENT. A young man in Milwaukee and his betrothed recently received a wedding present from the prospective bridegroom's company.

They opened it with high expectations and found a box filled with 14 telephone book covers. Betsy gave Bruce an odd look and Bruce just stared at the box, wondering.

Well, the next day he thanked his boss, anyway. "Sure appreciated those telephone book covers," he said. "Ought to be enough of them to last us a lifetime."

"Telephone book covers?" the astonished man exploded. "You got the wrong box!" The next day the couple received the right box. A real nice lazy susan.

•

SAME DIFFERENCE. A man in Roseville, Cal., deposited $1.10 for a call to Oakland, but talked on and on. The telephone operator, worried about a fast get-away, asked a policeman to keep an eye on the telephone booth.

"Say, buddy, you've been gabbing over an hour," the bored cop finally said.

"I only talked 3 minutes," the man replied. "My girl talked the rest of the time."

The cop had the last word. The toll, all $14.20, was rung up on the spot.

•

FALSE ALARM. A Pittsburgh, Pa., physician returned home from a short vacation recently, reports the Associated Press, and began inspecting his home to make sure everything was in order.

In the maid's room he saw what he though was an intruder and immediately called the police.

The intruder, police said, was only his maid—minus her wig.

•

HOOK TROUBLE. St. Clairsville, O., newspapers commended telephone operator Marilyn Bailey for her alertness to an unusual situation. A light flash on her switchboard recently indicated someone wanted to place a call from the First National Bank. Marilyn answered the signal but no one was on the line. She telephoned police who rushed to the bank with worried bank officials rustled out of bed. Instead of burglars, they fortunately found that a janitor had accidentally knocked the telephone off the hook.

•

AGE OF SPECIALIZATION. A harried delegate to the Democratic National Convention in Chicago pleaded with a hotel telephone operator to help him locate the New Jersey delegation.

The operator tried several times without success. Finally a quiet, restrained voice came on the line.

"Lost and found department," it said. "Can I help you?"

CIRCULATION

Guaranteed circulation of this issue is 11,339 of which 10,819 is paid.

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY
Since 1901

August 25, 1956

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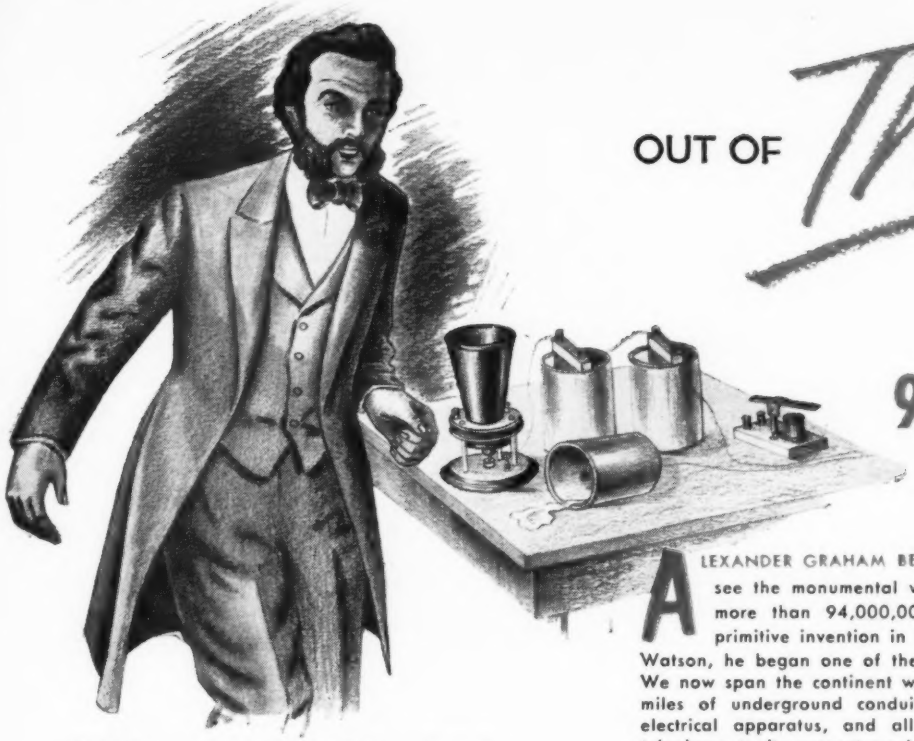
XUM



OUT OF *This* . . .

CAME

94,000,000

TELEPHONES

ALEXANDER GRAHAM BELL would no doubt be astounded if he could see the monumental worldwide network of voice highways, linking more than 94,000,000 telephones, which has resulted from his primitive invention in 1876. Speaking from room to room with Mr. Watson, he began one of the greatest advances in communication history. We now span the continent with our voices, and take for granted all those miles of underground conduits, elaborate and intricate "almost human" electrical apparatus, and all the research that has gone to bring the telephone to its present peak of efficiency.

Much of that "almost human" electrical apparatus is Lorain Products equipment. Its part in the intricate communications system is always a vital one, with the operation of the entire system often depending upon it. Under this responsibility, quality is a "must". We at Lorain are proud of the quality of our equipment, because we know it means better, more reliable service for you and your customers. Quality is never anonymous—invariably it has a famous name—a name that inspires unquestioning confidence. This confidence is yours when you buy Lorain equipment. For two decades this famous name has been the symbol of utmost dependability, and unmatched performance . . . giving lifetime, trouble-free, maintenance-free service to its users. We know that there are exciting possibilities ahead for the telephone industry, that only the surface has been scratched in this business, and we are constantly expanding our production facilities, doing never-ending research; doing our part to meet the challenge and to keep pace with world communications.

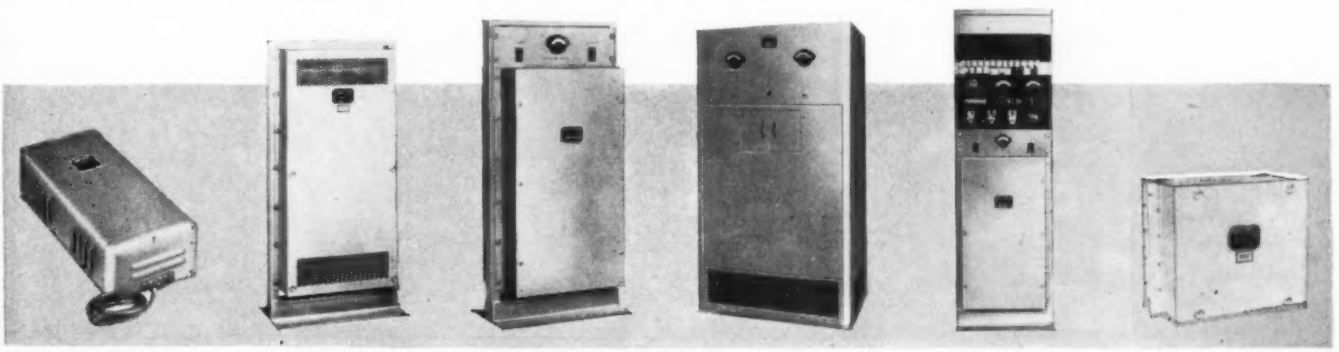
Whatever your power problem may be, our methods and facilities are yours to command. Without obligation, your problem will get expert, prompt attention. Our engineers will bring to your problem the benefit of many years of telephone power experience. If our standard equipment does not meet your requirements, we will design to meet your individual specifications. So phone, wire, or write . . . today.

AND THE NEED FOR

LORAIN'S

dependable

RINGING AND CHARGING EQUIPMENT!



Ringing-Talking Units
Eliminate the necessity for multiple or complicated installations by combining in one compact cabinet both ringing and talking power supply. Operate from 111, 117, or 123 volts, 60 cycle supply.

S-5 Sub-Cycle
One of a complete line of multi-frequency ringing converters. Utilizes Sub-Cycle circuits of proven dependability to generate Synchromonic frequencies. Adequate reserve capacity for exceptional load conditions.

Single Phase Flotrols
Capacities up to 24 amp. Most models available as Battery Eliminators. Special model FLOTROLS with particularly low sound level for PBX installations if equipment is in a business office.

Three Phase Flotrols
For plants requiring 25 amperes or more charging capacity. Current limiting feature protects charger against overloads. Exceptionally low power consumption especially during light load periods.

Lorain Power Panels
Regulated supplies with 2.5 to 50 ampere capacity for constant and fluctuating loads. With distribution, supervision and control features. Maintain regulated voltage normally and during power failures.

Carrier Supply Units
Provide 130 volt plate current for carrier or repeater operation. Normally operate from 115 volt 60 cycle single phase power supply, transfer to built-in standby vibrator upon power interruptions.

OUR EQUIPMENT IS SOLD THROUGH LEADING TELEPHONE DISTRIBUTORS

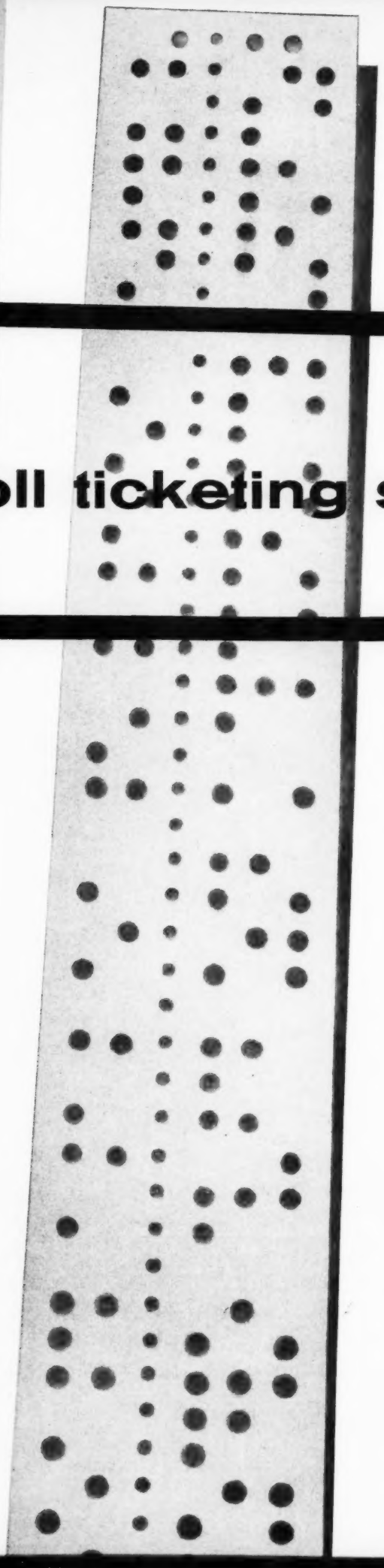
FLOTROL — PARTNERS IN DEPENDABILITY — SUB-CYCLE

LORAIN *Products Corporation*

1122 F STREET - LORAIN, OHIO - TELEPHONE 81171

POWER EQUIPMENT FOR COMMUNICATIONS AND INDUSTRY

Kellogg offers



a toll ticketing system that is a

- Most economical system available.
- Automatically records all information for billing.
- More compact.

XUM

automatic, compact, economical

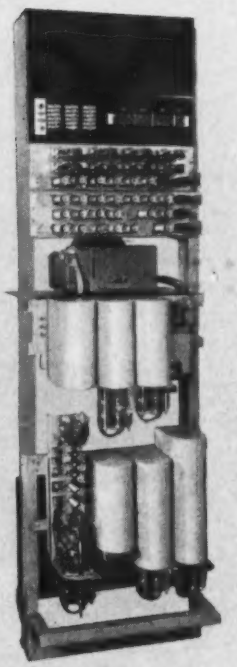
Make network toll calls profitable and prepare for nation-wide direct distance dialing with this practical, compact, Federal Automatic Ticketing System . . . priced within the range of every independent telephone company. The simple easy-to-service elements of the system include:

THE ROUTING SELECTOR, a standard step-by-step switch which is reached by dialing a prefix. It will automatically choose a toll trunk that is not busy.

THE SCANNER AND THE CLOCK, which record automatically on punched tape all the information that is needed in billing a subscriber.

Where routing selection is not required a "ticketing repeater" is available with complete recording features.

Why not start to plan your automatic ticketing now? For further information ask your Kellogg Representative or write:



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A DIVISION OF I T & T

KELLOGG SWITCHBOARD AND SUPPLY COMPANY

A Division of International Telephone and Telegraph Corporation

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Market 1-6011

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Mansfield 7-2816

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Los Angeles 13, Calif.
Vandyke 6759

Export Distributor:

International Standard
Electric Corp.
50 Church Street
New York 7, N. Y.

1594 Southland Circle, N.W., Atlanta, Georgia, Sycamore 4-2441

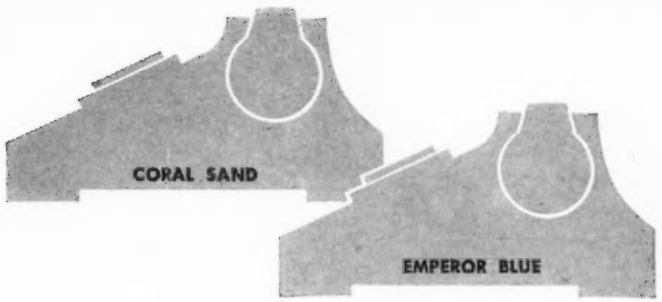
ADDED EXTENSIONRE

YOURSNO

IN7

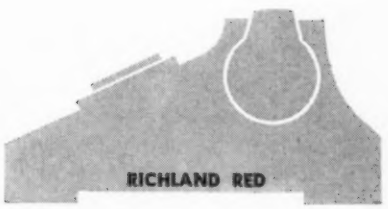
NORTH

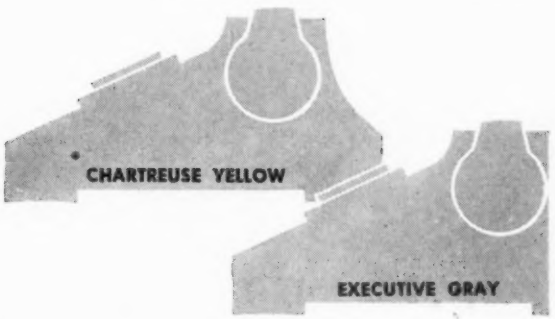
REVENUE

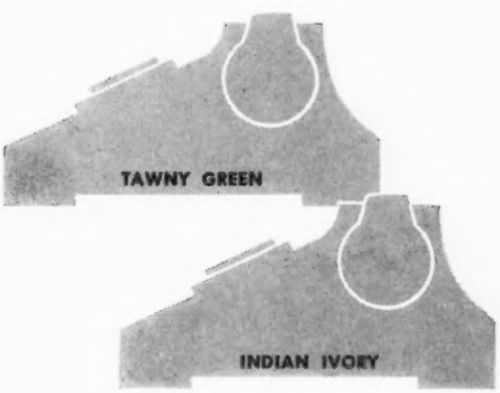


NOW with NORTH TELEPHONES

7 COLOR-TONES







Available for delivery NOW from all NORTH warehouses, NORTH N-541 Telephones in 7 dramatic Color-Tones open new avenues of approach for profit producing revenue!

Telephones in Color-Tones have subscriber appeal! Women love the fresh note a colored extension adds to the kitchen, the bedroom, any room in the house! Men appreciate the smart utility of the colored phone blending with the decor of offices and reception rooms.

Extensions become easy to sell to your subscribers with NORTH Color-Tone Telephones.

NORTH will help you build this profit producing extension business. Write for the NORTH merchandising story to discover for yourself how you can increase your company's revenue, your company's profits with NORTH Telephones in color-tones.

NORTH ELECTRIC COMPANY

601 SOUTH MARKET STREET, GALION, OHIO

XUM

LEICH

MANU
LEICH
PACIFIC

XUM

telephone that has modernized hundreds of magneto exchanges . . .

Over 180,000 Leich 900 magneto telephones are now in service. Telephone folks all over the country agree that this compact, modern telephone is the answer to their instrument problems.

With the Leich magneto telephone you can give more dependable service than ever before. Transmission and reception are the crispest, clearest you've ever offered your subscribers. The Alnico generator is powerful enough for your most heavily loaded rural lines. Your customers will find the handy generator crank easier to operate.

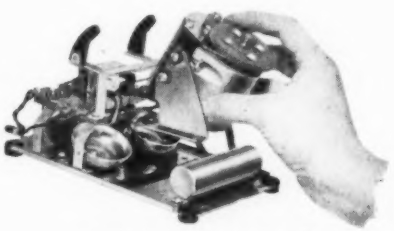
The unique design of this LEICH telephone enables you to offer your subscribers their choice of either wall or desk installation.

Another reason why the Leich 900 magneto telephone is such a sound investment is because it is so easy to convert to common battery or dial service. All it takes is 5 minutes and a few changes.

Here then, is the magneto telephone that offers a new high in magneto service . . . a telephone that was engineered with the problems of a magneto exchange in mind. Try one in your exchange and see for yourself.

use it for wall or desk installation!

No need to order a special model. The Leich 900 is both a wall and a desk telephone. For desk use just set it down. For wall use you simply turn it around and mount it on the wall. No changes are required. Just think . . . you need to stock but one type telephone for every requirement.

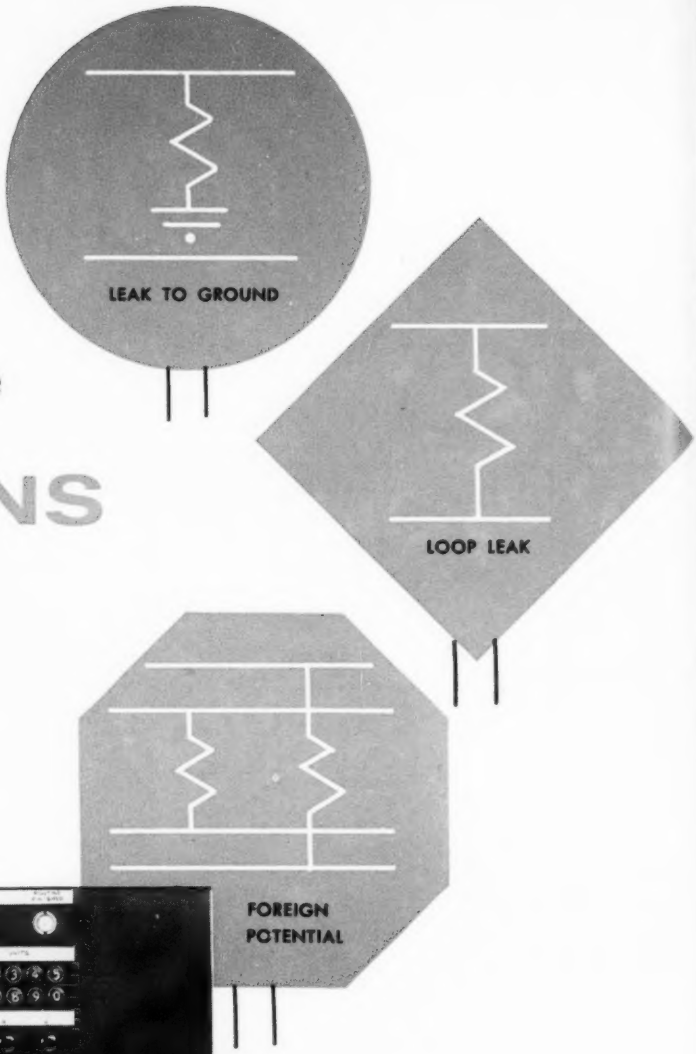


so easy to convert!

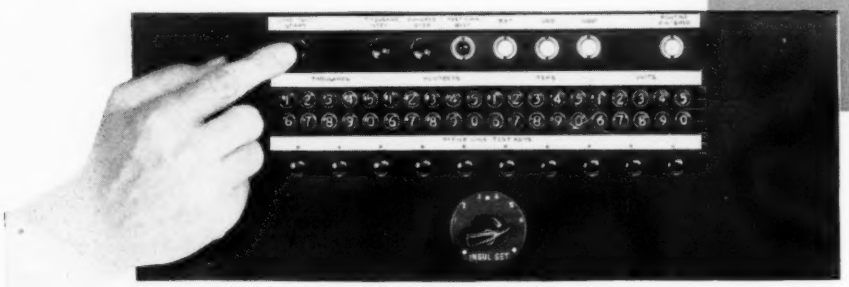
If your exchange uses Leich 900 magneto telephones and you convert to common battery or dial service, this telephone is still good. It takes just five minutes to remove the generator and change a few wires which changes the circuit to common battery. If you convert directly to dial, all you do is add the dial.

MANUFACTURERS OF TELEPHONES, SWITCHBOARDS AND RELATED APPARATUS SINCE 1907
LEICH SALES CORPORATION 427 W. RANDOLPH STREET CHICAGO 6, ILLINOIS
PACIFIC COAST: 11401 WEST PICO BLVD., WEST LOS ANGELES 64, CALIF. SOUTHWEST: 1227 SLOCUM ST., DALLAS 7, TEXAS

GENERAL SYSTEM INDEPENDENT



Can you spot these DANGER SIGNS in time?



It's easy with the Automatic Line Insulation Routiner!

Find line insulation faults *before* they become trouble tickets. Here's how. Apply the **Automatic Line Insulation Routiner** to any Strowger exchange having a regular switch train. Push a button, and the Routiner checks the insulation condition of every subscriber line. Automatically, it tests for leak to ground, loop leak, and foreign potential. Fast, too! It tests 30 lines per minute; a 5000-terminal office can be completely routined in less than three hours.

Use the Routiner to cut your routining costs, spare maintenance men, and improve service. Write today for Circular 1811. Address: *Automatic Electric Sales Corporation, 1033 W. Van Buren St., Chicago 7.* Or call, *HAymarket 1-4300.*

AUTOMATIC ELECTRIC

ORIGINATORS OF THE DIAL TELEPHONE

"It's IRRADIATED and the dielectric strength is doubled!"

NEW . . . IMPROVED

SUPERIOR TELEPHONE CABLE

NOW contains a polyethylene tape* developed by radiation chemistry!

New, improved SUPERIOR TELEPHONE CABLE now provides three additional features to assure you of top performance under all conditions:

- **Doubled dielectric strength** . . . for greater lightning protection.
- **Practically uniform capacitance** . . . the deviation in mutual capacitance now less than 1½%.
- **Insulation "graded" to conductor sizes** . . . to match closely the universal transmission standards for loading coils and terminating equipment.

SUPERIOR CABLE is accepted by REA and conforms to REA Spec. PE14.

Use all-plastic SUPERIOR CABLE for aerial and direct burial installations . . . it's resistant to moisture, ozone, oils, acids and alkalis! Available with regular spiral shield (5 mil aluminum) or, in certain sizes at slight additional cost, longitudinal shield (8 mil aluminum).

A self-contained tape, marked at one foot intervals up to 10,000 feet, guarantees the footage you receive and lets you measure the footage you use.

For Top Performance at less cost . . . order SUPERIOR CABLE today!

"Super-Splice"

Make splices MOISTUREPROOF, WATERPROOF . . . from inside out!

New Superior "Super-Splice" makes the splice permanently as good as the cable. An REA Standard. Write for details.

Irrathene ® irradiated polyethylene film, a General Electric product.

For detailed information and price, write

SUPERIOR CABLE

SUPERIOR CABLE CORPORATION
Hickory, North Carolina

The C & D lead-calcium telephone batteries in the clear plastic jars. Life expectancy conservatively estimated at 25 years.

at Northern Ohio Telephone Company

they've *standardized* on C&D PlastiCal® Batteries

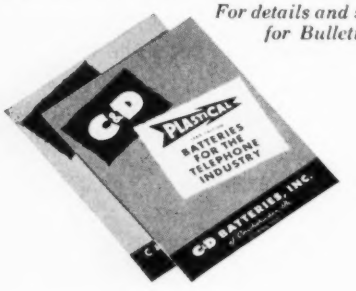
It's C & D—throughout all exchanges—for Northern Ohio Telephone Company. Monroeville, Carey, Grand Rapids . . . they all depend on C & D *PlastiCal* lead-calcium batteries for extra power, extra convenience, extra life.

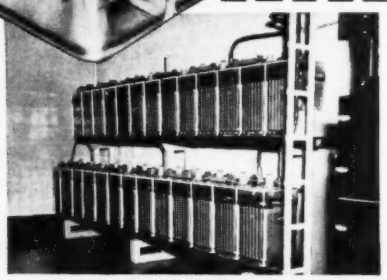
Northern Ohio chose C & D batteries on their service record. What better proof that it pays to specify C & D! With C & D batteries this telephone property gets all the advantages of—

1. One-piece, permanently-sealed plastic case. Entire unit is shock-resistant . . . lighter and more compact than glass or rubber.
2. More compact installations. With smaller dimensions for a given capacity, C & D's take up less battery room space.
3. Easier maintenance, because patented Post Seal eliminates acid creepage.
4. Lower shipping costs. Light plastic case reduces total in-place cost.

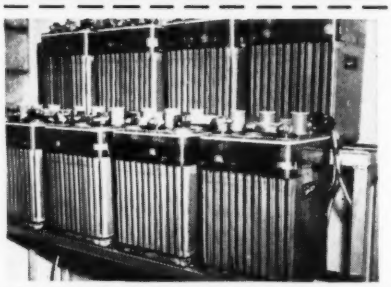
For C & D Batteries—consult your Equipment Supplier.

For details and specifications—write for Bulletin T-527 and T-528

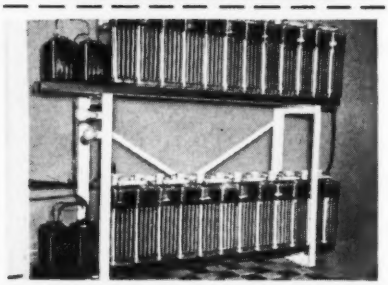




Carey



Monroeville



Grand Rapids

C&D BATTERIES, INC.
of Conshohocken, Pa.

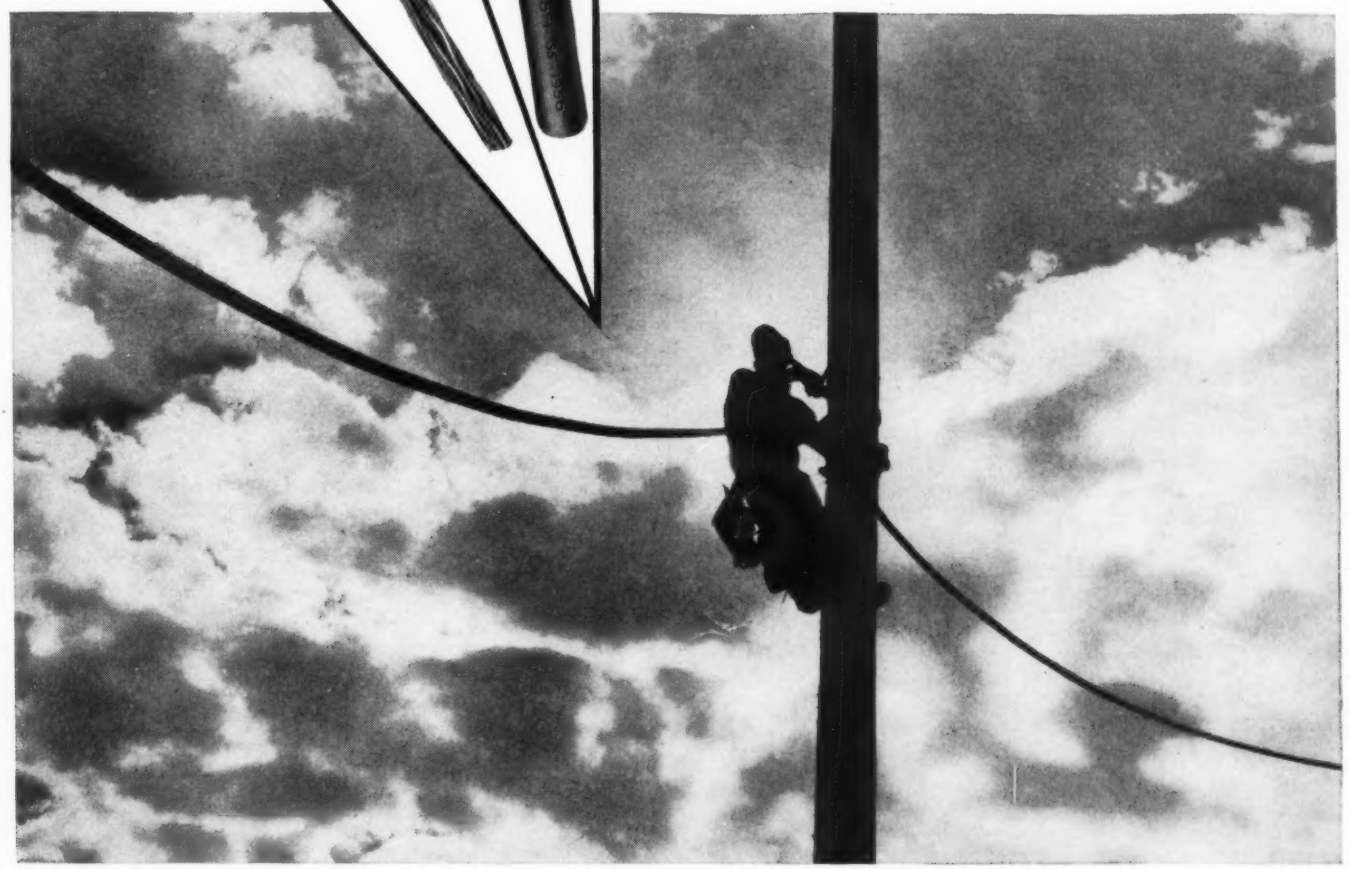
INDUSTRIAL BATTERIES SINCE 1906

C&D BATTERIES, INC. 1906 1956 Conshohocken 50th ANNIVERSARY

SALES AND SERVICE OFFICES IN PRINCIPAL CITIES FROM COAST TO COAST

XUM

Choose the right *self-supporting* cable for each job



Substantial savings are possible on new construction and cable plant extensions with the use of Ankoseal Self-Supporting Cable because of the elimination of the messenger and associated hardware as well as the reduced man-hours required to string the strand and attach the cable. The lightness and flexibility of the cable will also reduce installation time.

Rural Distribution Wire: *Without shield or jacket, the individual conductors are insulated with polyethylene plus a PVC outer covering made in three, six, eleven and sixteen pairs. The fully color coded pairs are cabled around a polyethylene insulated, high strength, 109 galvanized steel support wire. Suitable for fast, low cost construction to provide temporary service or cable relief.*

Type 775-P-SS: *This is the standard Ankoseal self-supporting cable, fully shielded and PVC jacketed for permanent installation. Made in six, eleven, sixteen and twenty-six pairs. Shielding protects against induced noise. The PVC jacket provides uniform transmission characteristics under all weather conditions. Elimination of the messenger speeds installation and reduces costs.*

Technical service on specific installation requirements is available upon request from Ansonia.

· ANSONIA ·
Ankoseal®

THE ANSONIA WIRE & CABLE COMPANY • 111 MARTIN ST. • ASHTON, R.I.
TELEPHONE PAWTUCKET 6-6300

being squeezed?

Are rising costs throttling your profit margin?

Our COMPLETE DIRECTORY SERVICE PLAN can lessen the pressure . . . increase your net revenue . . . as it is now doing for independent telephone companies in over 4400 communities.

We'll gladly show you how. Call or write.

You are cordially invited to write any one of our Division Sales Offices listed below, or Frank Davies, Chairman, or Wesley H. Loomis III, President, for information concerning our Directory services — and if the spirit moves you, call us collect.

GENERAL SYSTEM

INDEPENDENT

GENERAL TELEPHONE DIRECTORY COMPANY

INCORPORATING LOOMIS ADVERTISING COMPANY

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Who liveth by the sword!

By FRANCIS X. WELCH
TELEPHONY'S Washington Editor

Law-abiding union members are urged to consider the discredit that comes to themselves and to their organizations when a minority in their ranks or outsiders commit vandalism and violence in strikes.

THE RECENT revival of telephone strike violence in Ohio would indicate that some people have learned nothing from the recent dynamiting convictions in a Mississippi federal court, which grew out of the Southern Bell Telephone & Telegraph Co.'s strike last year. The sabotage in the Portsmouth, O., area, where employees of the Ohio Consolidated Telephone Co. have been out on strike for more than a month, seems to be following the same tiresome and distressing pattern which characterized similar events during the Southern Bell strike of 1955.

First, there is a series of cable cuttings. Then comes outright aggressive acts of assault and battery and property damage. Inevitably these events are followed by a disclaimer of any responsibility on the part of the striking union, its officials or members. Regardless of what the strike is all about, it is difficult to see what the parties hope to accomplish by such actions. To analyze this situation, coldly and calmly, we might pick it apart as a lawyer would do in analyzing factual evidence.

First of all, it is an established fact that there were dozens of cable cuttings in the Portsmouth and other areas served by the Ohio Consolidated Telephone Co. Other acts of violence, such as turning over an automobile with two repairmen inside, terrorizing the Cadiz exchange the entire night of Aug. 8, shooting out windows, miscellaneous explosions, mob assaults and riots on Aug. 16 at New Boston and Sciotoville —these have all been reliably reported in the press. Second, it is a fact that employes of the Ohio Consolidated Telephone Co. went out on strike July 15 over a dispute involving the renewal of a contract between union and company. No one can dispute these two facts.

Now the strictly theoretical question arises, *who* is responsible for these acts? The union officials deny all responsibility, as usual in such cases. But any realistic appraisal of the situation points to only two possible alternatives: One, the union officials are telling the truth, and these acts are all sheer coincidental incidents, for which mysterious and unnamed outside parties are entirely responsible. Second, the union members or their sympathizers *are* responsible for these acts, and their motive is to create public sympathy for the strikers' cause.

Even if one were so naive as to believe in the first alternative, the striking union members would still have a clear duty to themselves and their union. That would be to look up these outside characters, who are bringing disrepute on their union, and see that they are exposed and brought to justice. Why should the union and its members be blamed for outsiders butting into such a situation? Why should they tolerate it?

But such a supposition, on its face, is not going to be the reaction of any reasonably well-informed person. On the contrary, it flies in the face of reason to suppose that a bunch of hoodlums, who are entirely strangers to the community where these acts were performed, should invade it, at this particular time, with shotguns and axes and hack saws—just for some perverted thrill of commiting senseless acts of vandalism. Nobody really believes that, of course.

And so we proceed to the second and much more logical assumption—that the striking union members *do* know something about this. That is an almost laughable understatement. About 20 members of a CWA local were positively identified, for example, as part of a group which turned over an automobile outside of a restaurant in Portsmouth on Aug. 13. Two emergency crew members were inside the car but fortunately escaped personal injury.

Under this supposition, what about the motive for these acts? As stated before, presumably it is to inspire public sympathy for the strikers' cause. But does this make any more sense?

Let us put ourselves in the position of the public—the subscribing public. The average telephone user is likely to be either indifferent to a labor dispute involving the telephone company and its employes, or he might be somewhat sympathetic to legitimate demands of the union members for wage increases or better working conditions, etc. Or-

dinarily, in the first instance at least, average telephone subscribers are not sympathetic with *management's demands* in such disputes, if they even think about them at all. But that is management's problem. It usually takes a considerable amount of education, advertising, and other publicity for management to get its story across to the public, if it ever does.

Thus, so as far as public sympathy is concerned, it would seem to be the better part of good sense for a striking union and its members to carry on its bargaining lawfully and vigorously *at the bargaining table!* What is likely to be the reaction of a telephone subscriber when he finds out that somebody has cut his telephone line and destroyed his service for an indefinite period? He knows that the company did not destroy its own property. And he does not even have to be bright to figure out that the strikers were responsible. So what then? Will he thereupon stand up and cheer for the union's cause? He would be a very unusual citizen if he did.

But let us take the supposition a step further. Let us apply it to a situation where an entire community has its service destroyed by acts of violence and terror, causing the exchange to be closed as a matter of personal safety to working company employes. Or, let us suppose that a subscriber has special need for telephone communications, such as sickness or an emergency call of some other kind. What is likely to be the subscriber's reaction then?

In all probability it will be one of resentment and growing hostility to strikers who are so careless of other people's rights. The more such acts multiply and the longer they continue, the greater that hostility will grow until the union will inevitably find itself disgraced and discredited before the very bar of public opinion which it seeks to influence.

Strike violence, therefore, is self-defeating and essentially stupid from a striking union's point of view, in the light of such cold analysis. It gains the strike cause nothing and it can injure it a great deal. The bad publicity alone should give self-respecting union people cause for alarm.

Six exchanges had to be closed in the Cadiz, O., area because of the fear that mob violence would spread and result

REA Makes Telephone Loans in Four States

The Rural Electrification Administration made loans totaling $1,355,000 for improvement and extension of telephone systems in Texas, Idaho, Oregon and Pennsylvania during the period July 30-Aug. 10.

The funds will be used to provide service for the first time to 975 farm families and other rural subscribers. In addition nearly 3,000 present subscribers will get improved service through automatic facilities.

Burnet (Tex.) Telephone Co. on Aug. 2 received an allocation of $260,000, second loan, to finance the extension and improvement of rural telephone service in Bee, Goliad, Karnes and Live Oak counties.

The loan will enable the borrower to provide initial service for 151 farm families and improved service for 358 present subscribers. The company proposes to acquire the properties of the following companies: Pettus Telephone Co., Reagan Telephone Exchange at Charco and the Berclair Telephone Co. These companies now provide magneto, common battery and some dial service over 116 miles of line.

Plans of the company call for it to construct new automatic central offices at Berclair and Pettus, retain the present automatic facilities at Mineral and Pawnee, and construct 99 miles of new line. Of the existing line, 103 miles will be used in place and 3 miles rebuilt.

Two loans to this borrower, totaling $585,000, will enable it to bring modern dial service to 1,478 subscribers over 361 miles of line. The system will consist of five exchanges. Of these, the Burnet, Mineral and Pawnee exchanges are completed and in operation.

J. B. McDuff is president and manager of the company.

*

Owyhee Telephone Co., Wilder, Idaho on Aug. 6 received an allocation of $626,000, to finance the extension and improvement of rural telephone service in Canyon and Owyhee counties in Idaho, and Malheur County in Oregon.

The new borrower, a commercial corporation, plans to furnish service for the first time to 491 rural families, and to improve the service of its 1,605 subscribers. The existing system consists of magneto central offices at Marsing and Wilder, and an automatic office at Homedale.

New construction planned by the borrower includes automatic office buildings at Marsing and Wilder, and 116 miles of line. The automatic equipment in the Homedale building will be moved to the Marsing office, and larger automatic facilities will be installed at Homedale. The borrower also plans a commercial office building at Homedale at a later date. About 35 miles of the present 172 miles of line will be rebuilt and 136 miles used in place.

Harper Saunders is president and manager.

*

Stayton (Ore.) Cooperative Telephone Co., on Aug. 10 was extended a loan of $419,000, first loan, to finance the improvement and extension of rural telephone service in Linn and Marion counties.

The new borrower plans to use these loan funds to furnish initial service to 333 farm families in its area, and improved service to its 1,026 existing subscribers. At present, the cooperative is furnishing common battery and magneto service over 161 miles of line. It proposes to convert the system to automatic operation and install automatic facilities in the new combination central office and headquarters building which it has just completed.

About 57 miles of new line will be added, 91 miles of the existing line rebuilt, 61 miles used in place. A portion of the loan funds will be used for refinancing existing indebtedness of the borrower.

President of the cooperative is George Tate. Mike Benedict is manager.

*

Lackawaxen and Hawley Telephone Co., Rowland, Pa. (temporary address: Lackawaxen), on Aug. 10 was extended a loan of $50,000, second loan.

The borrower plans to use these funds, together with funds from a first loan of $159,000, to furnish new and improved service to 420 rural subscribers in Pike County. The system will consist of 60 miles of line. The company is now in process of constructing a new automatic central office and headquarters building in Rowland.

A portion of the loan funds will be used to refinance indebtedness of the borrower incurred by flood damage.

E. Y. Strand is president and manager of the company.

in assault, injuries, and even the possibility of manslaughter. It was not an easy decision to close these exchanges. But, because local authorities were unable to furnish police protection, the obligation of the telephone company to protect the lives of its employes, in such a situation, temporarily surmounted its solemn obligation to render public service under all possible circumstances.

The unlawful character of such mob violence was recognized by the county court when an injunction was granted on Aug. 7, restraining all acts of violence or threats of violence and reducing picket lines to three or four pickets per exchange building. But unthinking persons, who are intent on violence, can easily find opportunities for subterfuge. Working employes can be followed to their homes or automobiles. Outside plants can be dynamited or otherwise destroyed. All this out of sight of the picket lines and rarely witnessed. Chances of contempt of court citations are thus minimized.

But the reasonable and usually law-abiding striking union member must ask himself, what all this accomplishes? What good have such tactics *ever* accomplished for strikers or their unions? Think back over the past history of utility strike violence and point to one instance of actual gain for the strikers, which could be fairly attributed to such misdeeds? Or, to take an example of more recent moment, what good did it do the Southern Bell strikers in 1955? They could look in their pockets today and give a quick answer to that question. About the only tangible result was to prolong a costly strike, further embitter hostile feelings already aroused, and sow seeds of suspicion infecting if not destroying years of friendship and confidence. Such wounds do not heal easily or quickly. The sane man must ask himself, is it worth it?

The history of utility strike violence is an interesting one, and not always so senseless as the developments in Ohio. Back in the early days of organization of the electrical workers, there once was a rough-tough labor leader, who gained quite a reputation for dynamiting transformers. These explosions were not in the spirit of vindictiveness. This boss was not mad at management. He just wanted to be sure he had their attention. It was his way of letting management know he meant business—something like a few "love taps" preliminary to a real fight. The management of those days well understood the "message" and the implied meaning that if they did not call this boss in for a "review," it was going to cost the stockholders some real money. He generally got his way, mainly because in his own rough manner, he was a man of his word. Management knew that when a bargain was reached, he could be relied on to "deliver" the performance of his well-disciplined union members. True, there were whisperings of "deals" and he did prosper marvelously in his own affairs —died a wealthy man. But on the whole, his union made out well.

But, even these early misdeeds bore the inevitably bad fruit of their seeds of moral delinquency. The gangsters of the post-prohibition period, looking around for opportunities to shift their talents into other fields, quickly caught on to this technique, as one ideally suited to blackmail and extortion.

And, so we witnessed the scandalous invasion of a number of previously honest unions by racketeers and gangsters. There was the waiters union in New York, which cashed in on the vulnerability of any restaurant to rough stuff, ranging from stink bombs to assault and battery. There was the stagehands union, taken over by some characters who ended up in the penitentiary. It took the prosecuting talents of Thomas E. Dewey, then district attorney of New York, to cleanse some of these Augean stables of labor unions, befouled by mobs and gangsters. There was even Murder Incorporated. Organized labor, as a whole, got a bad name from which it took years to recover. Such was the tragic end result of these early foolish, and relatively innocuous, "love taps"—the illegal use of force as a short cut to obtain entirely legitimate, or at least properly bargainable, union demands.

But the recent rough stuff in Ohio was of an entirely different caliber from the old-fashioned "love taps" of the transformer shooters. These Ohio misdeeds were not intended as any "message" to management. The spiteful nature of the Ohio riots took on the semblance of incipient lynching parties. They were apparently inspired by a mixture of pure vindictiveness and delusion that, somehow, that was the way to make the public realize that a strike was in progress, and that they (the public) should sympathize with and support that strike.

Merely to state such a proposition is to expose its folly. One of the hard facts which rioting strikers overlook, but which management will have to bring to the attention of the public, is that *the telephone subscribers must eventually pay for strikers' violence!*

Cut cables, broken windows, and other property damage became part of the cost of doing business. It either goes into the rate base or comes out of operating expenses. Thus, it does not come out of management's pockets. It does not even come out of the shareholders' pockets. It comes out of the *subscriber's* pocket, because inevitably he has to pay for it on his monthly telephone bill. What a fine way to curry favor with the public for the striker's cause! It is like telling the public, "I'll wreck the telephone plant, you'll have to pay for it; and that will make you support my quarrel with the boss." Does this make sense?

Such a course becomes even more ludicrous when we consider the awful damage to the fair name of labor in the public eye caused by the terrible publicity which inevitably follows such reckless conduct. Newspapers all over the United States were carrying stories about the violence on the night of Aug. 16 in Ohio. Press association dispatches published in all major cities throughout the country referred to "mobs" and "riots." Here, for a sample, is the exact text of an United Press dispatch datelined Portsmouth, O., Aug. 17:

"A hit-and-run mob of some 300 persons damaged three exchange buildings of the strikebound Ohio Consolidated Telephone Co. here Thursday night in the latest violence in a labor dispute between the company and the Communications Workers of America.

"No one was injured.

"Police said the demonstrators smashed all windows of the exchanges in New Boston and Sciotoville and attacked the main exchange building here twice. Several shots were fired through windows while two telephone operators each in the New Boston and Sciotoville exchanges took cover under their switchboards.

"Two company officials and police evacuated the operators at the New Boston and Sciotoville exchanges and service to the communities was halted immediately upon order from company officials.

"More than 5,000 telephones were out of service today as a result of the demonstration and because of a severed main feeder cable out of West Portsmouth which was cut Wednesday.

"C. E. Williams, company president, said the company would attempt to restore service as soon as possible."

Surely this is an odd way to gain public sympathy for a strike. Of course, the explanation is inevitably made that these are the deeds of a dare-devil minority, or a "few bad eggs." But it is the majority on strike who must suffer the blame. They must recognize this responsibility. Naturally, such criminal activity does not come spontaneously to persons who have led lives of respectable citizenship. But the union, and the majority of members, can get a black eye just the same, out of the wild orgies perpetrated by a

(Please turn to page 38)

TERMINAL-PER-STATION

Operation of Telephone Party Lines

By **A. W. BAERRESEN**

PART 1

TERMINAL-PER-STATION systems have been in use for many years in manual and automatic exchanges. As with other important developments in telephone switching, the need for this facility was, no doubt, the reason for its development and use. The growth of operator and customer toll dialing on a national basis has led to new emphasis on terminal-per-station operation because of the advantages it offers for better call completion. However, the many advantages of the terminal-per-station system make it very desirable in local plant and local traffic operations, whether or not incoming toll calls are to be dialed from distant points.

It is the intent of this article to explore the many phases of the subject which should be considered in planning for new equipment or for changes and additions to existing installations.

Terminal-per-station central office equipment employs an individual final terminal for each main or primary station. The number of that terminal becomes the individual directory number of the station assigned to it. Terminal-per-station arrangements permit associating any final terminal or any group of final terminals with any line, so that any main station may be moved from one party line to any other party line or from an individual line to a party line, or vice versa, without number changing.

The directory numbers have no relationship to line numbers nor to the other main stations on the same party line. Each non-working telephone number has a corresponding non-working final terminal which together with all other non-working terminals may readily be connected to intercepting trunks. Terminal-per-line equipment, on the other hand, uses only one final terminal for each line and, thus, all stations on a terminal-per-line party-line must have identical telephone numbers, except for one extra digit used to select the station ring.

Therefore, stations cannot be moved from, or to, terminal-per-line party-lines without number changing. Since party line main stations, in terminal-per-line equipment, do not have individual final terminals, complete interception of vacant and vacated party line numbers is usually considered to be uneconomical.

The terms "terminal-per-line" and "terminal-per-station" have the same significance in dial offices as the terms "jack-per-line" and "jack-per-station" have in manual offices. However, in jack-per-line manual offices, full intercepting service may be given almost as economically as in jack-per-station offices, since the interception of calls to non-working numbers is a function of the terminating manual operator, as guided by markings on the subscribers' jacks.

Advantages of Terminal-Per-Station: Local Exchange Service

Number Changing: With terminal-per-station as against terminal-per-line operation, practically all number changing of party line stations is eliminated on line regrouping, upgrading, or subscriber moves within the central office serving area. Number changing is degrading to the local service. Many calls to changed numbers, which are

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Since retiring, Mr. Baerresen has traveled extensively in Europe and the United States visiting telephone installations of all types. He is currently active as a consultant to telephone companies on traffic subjects.

not intercepted, are lost because the calling party, even if he calls an information operator, may not know the name under which the telephone is listed.

In addition to subscriber dissatisfaction, the costs of number changes to the telephone company are often greater than realized, involving added information, intercepting, and assistance operating costs and repair clerks expense, and the expense of changing all of the affected records.

Intercepting: Interception of calls to a terminal-per-line party line vacancy is costly because of the apparatus required for each party line on which a station number is being intercepted. The investment in this apparatus and the costs of administering it are such that interception of numbers changed and disconnected from terminal-per-line party lines is generally provided for a short period only, and in many instances not at all for residence disconnects. With terminal-per-station operation, interception of a vacated or vacant party line number is accomplished as simply as for an individual line number, since each party line station has an individual terminal.

Voice transmission between the intercepting operator and the calling party is more difficult with terminal-per-line intercepting arrangements than with terminal-per-station because the called line is connected across the intercepting trunk. Also the ringing of distant stations on a terminal-per-line party line having a "number" on intercept is sometimes impaired by the intercepting ringer at the central office. With terminal-per-station intercepting, only the called terminal, together with the other non-working terminals of one or two connector groups are connected to the intercepting trunk.

Also with terminal-per-line operation, incoming calls to a number which is to be temporarily disconnected for non-payment, cannot be intercepted at the central office since the station involved is still on the line and will receive the ring. With terminal-per-station equipment, calls to party line stations which are disconnected for non-payment, are easily intercepted, obviating field visits for disconnecting and re-connecting such stations (intercepting equipment arrangements for terminal-per-station offices are covered later herein).

Better Local Service Because of Intercepting: Full interception of all non-working and changed numbers is economical with terminal-per-station equipment. With all non-working terminals intercepted, a ringing signal, a busy signal, or an intercepting report should be received on every completely dialed call. A ringing signal should always denote that a *working* station (or an operator) is being rung. Failure to receive an audible ringing tone, a busy signal, or an intercepting report should indicate trouble to a calling subscriber who should be encouraged to report such an occurrence.

A properly maintained plant with full interception of all non-working terminals and levels, results in confidence and satisfaction in the dial service on the part of the subscribers, with fewer calls to information and repair service or assistance operators. Lack of interception of calls to vacant numbers on terminal-per-line party-lines, results in a false indication that the called station is being rung; while calls to non-intercepted vacant terminals receive no ring-back tone, so that the calling person is uncertain as to whether a trouble condition or a vacant number has been encountered.

Party Line Fills: It is generally possible to maintain higher party line fills with terminal-per-station equipment than with terminal-per-line, since party line transfers and regrouping can be effected without number changes. Because of the number changing involved and the impracticability of providing adequate intercepting with terminal-per-line equipment, regrouping of party lines to maintain good fills is generally not done to as great an extent as is feasible with terminal-per-station equipment.

Terminal-per-station operation, therefore, generally results in higher party line fills, thus contributing to economies in outside plant.

Where there is a good proportion of four-party development, four-party fills of 3.0 to 3.2, or even higher, are often maintained with terminal-per-station operation; whereas, under the same conditions with terminal-per-line equipment, fills over 2.5 are difficult to maintain, unless there is a small volume of station movement. Increasing line fills from 2.5 to 3.1 effects a reduction of 19.2 per cent in the cable pairs and central office line equipment used. Also, fewer subscribers are receiving a higher grade of service than the service for which they are paying.

Offices With Little Station Movement: The advantages of terminal-per-station operation in avoiding number changes are, of course, not as important in central offices having little station movement as in offices with average station turn-over. However, with industry decentralizing and smaller places becoming urbanized, station movement may increase considerably in many small exchanges. The full interception of all non-working numbers is of definite value in all exchanges because of subscribers' errors in calling, resulting in vacant numbers being reached.

Numbering Plan Capacity: Terminal-per-station operation increases the main station capacity of a given number of telephone numbers. For example: A terminal-per-line connector group requires two digits of the telephone number to select the line and a third digit to select the station ring, thus a thousand numbers are required. If a terminal-per-line connector group should have 99 lines working with an average of three stations per line, only 297 stations would be served per 1,000 telephone numbers. In terminal-per-station equipment a ringing digit is not used and only two digits are needed per connector group, thus (with a normal fill of 90 per cent) 90 stations are served per 100 telephone numbers or 900 stations per 1,000 numbers.

With universal numbering, as contemplated under the National Numbering Plan, the conservation of office codes (prefixes) is necessary and, therefore, it is desirable that as many stations as possible be operated in each block of 10,000 numbers. With terminal-per-line equipment, 10,000 telephone numbers, that is, a separate office code, is required for each 1,000 lines which at the most will normally serve only 3,500 main stations; while on a terminal-per-station basis, one code will serve at least 9,000 primary stations.

Advantages of the Line Intermediate Distributing Frame: Terminal-per-station arrangements always provide for cross-connecting between the line circuit equipments and the connector terminals. This provision is made by terminating the line circuits and connector terminals at opposite sides of a second subscriber line distributing frame, known as the line intermediate distributing frame (LIDF). In small offices these separate terminations may be made at the main frame, in which case this single frame is known as a combination distributing frame.

Older terminal-per-line offices may or may not employ an LIDF or have any arrangements for cross-connecting between line equipments and connector terminals in which case the connector terminals are permanently cabled to the line equipments and there must be as many line equipments as connector terminals. Present practices for terminal-per-line offices, however, generally provide for separate terminations of line equipment and connector terminals on the main frame or provide a separate LIDF.

The ability to associate any con-

nector terminal with any line equipment, as provided by an LIDF, permits balancing loads in the line finder (or line switch) originating groups without number changing. Balanced traffic loading of all sub-groups for both the morning and evening busy hours is very important as it insures the fullest possible use of the call capacity of the equipment.

If the line equipments of terminal-per-line offices are permanently connected to the connector terminals, line equipment is idled by individual lines which are on intercepting. Also if the call capacity of a connector group will not permit assigning all the terminals in the group, line equipment associated with the terminals not used will also be idled. Likewise terminals in a connector group may have to be left out of service if the associated line group is overloaded and cannot be economically reinforced by adding finders.

It is thus seen that the provision of LIDF arrangements effects economies in the use of the terminal equipment, and permits better service with the same amount of traffic carrying equipment.

Incoming Toll Service Advantages

Number Changes and Intercepting: The reduction in number changes and the provision of full interception of all non-working numbers in an exchange or a central office, made possible by terminal-per-station equipment, is of very definite advantage to distant operators and subscribers when dialing incoming toll calls directly to the exchange. There is a very considerable saving in originating toll operating work by the reduction in calls encountering changed numbers. Toll operating work is also saved by the elimination of calls encountering "no-rings" and false "don't answers" caused by lack of interception and by the reduction of the subsequent calls to a verifying operator.

There is also a corresponding saving in the operator's use of toll circuit time. The toll service speed is improved by terminal-per-station equipment at the terminating office. Because of the obstacles encountered in dialing incoming toll calls to terminal-per-line party line equipment, subscriber direct toll dialing from distance points to such equipment can be unsatisfactory.

Of course, the difficulties of dialing incoming toll calls to terminal-per-line offices, directly affect only distant subscribers and operators, who may be those of another telephone company. However, a number change and lack of adequate intercepting may result in the loss of important toll calls to local subscribers.

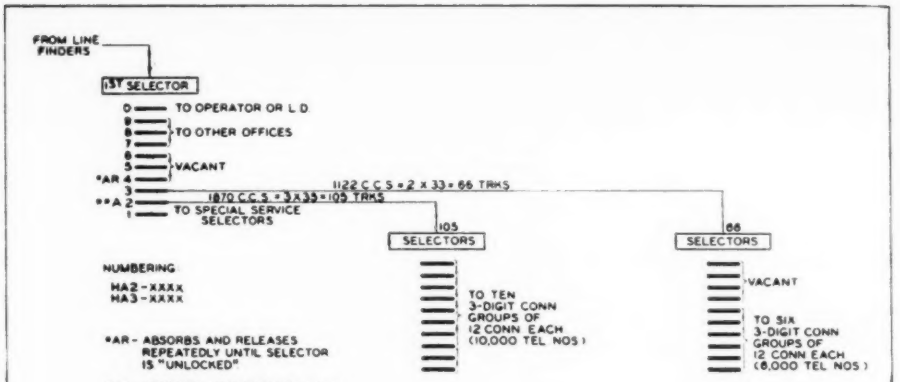

FROM LINE FINDERS
1ST SELECTOR
0 TO OPERATOR OR L D
9
8 TO OTHER OFFICES
7
6
5 VACANT
*AR 4
3 1122 C C S = 2 X 33 = 66 TRKS
**A 2 1870 C C S = 3 X 35 = 105 TRKS
1 TO SPECIAL SERVICE SELECTORS
105 SELECTORS
66 SELECTORS
NUMBERING
HA2-XXXX
HA3-XXXX
TO TEN 3-DIGIT CONN GROUPS OF 12 CONN EACH (10,000 TEL NOS)
VACANT
TO SIX 3-DIGIT CONN GROUPS OF 12 CONN EACH (6,000 TEL NOS)
*AR - ABSORBS AND RELEASES REPEATEDLY UNTIL SELECTOR IS "UNLOCKED"
**A - ABSORBS AND RELEASES ONCE AND UNLOCKS SELECTOR AFTER SELECTOR IS UNLOCKED. DIGIT ABSORBING LEVELS CUT THROUGH ON SUCCEEDING DIGITS
REQUIRED
1800 CONNECTOR TERMINALS
192 T/L 3-DIGIT CONNECTORS
171 FINAL SELECTORS
2 OFFICE CODES

Fig. 1. Terminal-per-line.

Disadvantages of Terminal-Per-Station

Reverting Calls: Under terminal-per-station operation, party line subscribers cannot recognize the telephone numbers of the other stations on their line, since the telephone numbers have no relation to line numbers. Subscribers must, therefore, be instructed to call the assistance operator or repair clerk, when reverting calls are encountered or suspected, in order to obtain the proper reverting call code.

Higher First Cost: The highest investment required in central office equipment on a terminal-per-station basis as compared with terminal-per-line for the same number of lines and stations is, of course, a disadvantage, especially if the improvement in service afforded by the terminal-per-station system is not taken into consideration. The comparative costs are discussed in the following paragraphs.

Investment Cost of Terminal-Per-Station

The following discussion and the examples used are based on Strowger step-by-step central office equipment. The Strowger system provides for either terminal-per-line or terminal-per-station operation; the terminal-per-line arrangements for party lines requiring less investment (first cost) in central office equipment than terminal-per-station.

Additional Terminals, and Connector Switches: A terminal-per-station central office serving party lines requires more connector terminals than terminal-per-line for the same number of main stations, and, therefore, more connector groups. The increased number of connector groups, although for the same total traffic volume, requires more connectors due to the lower efficiency of the smaller groups. The terminal-per-station connector switches, however, are simpler and less costly than terminal-per-line connectors and this will effect an offsetting savings. (Types of terminal-per-station connectors will be discussed later herein).

Examples Showing Reasons for Cost Differences: Assume as an example, a terminal-per-line connector group of 10 connectors which carries a full traffic load and which serves 20 one-party lines, 10 two-party lines with 15 main stations, and 50 four-party lines with 145 main stations; or a total of 180 main stations on 80 lines.

With terminal-per-station equipment, 200 connector terminals would be required for these 180 main stations at a terminal fill of 90 per cent. Six and one-half connectors would be required for each group of 100 terminals. A total of 14[1] might be provided for the two groups resulting in better service than that provided by the 10 terminal-per-line connectors; or only twelve may be provided, giving a somewhat poorer grade of service.

Thus, we have an increase of 100 per cent in connector terminals and from 20 per cent to 40 per cent increase in connectors. However, the straight line terminal-per-station connector switch costs less than the terminal-per-line switch. If the office being used as an example consists of 10 groups of terminal-per-line connectors, 20 groups of terminal-per-station connectors would be needed. These additional connector groups might require some additional preceding selectors depending

(1) A 10-connector group carries 149 hundred call seconds (ccs). One-half of 149 ccs = 75 ccs. Six connectors carry 64 ccs. Seven connectors carry 84 ccs.

upon whether another rank of selectors should be required and upon the preceding selector sub-grouping. Additional distributing frame space would also be required for terminating the additional 1,000 connector multiple.

By way of further illustration of the probable increased investment required in terminal-per-station over terminal-per-line central offices, another hypothetical example might be considered. Let it be assumed that a proposed new Strowger office is being engineered to serve 2,600 main stations, consisting of 550 one-party, 300 two-party, and 1,750 four-party stations. "Two-five" numbering is to be provided. Paystation, rotary and suburban services will be omitted for simplicity. Cost comparisons on a terminal-per-line and on a terminal-per-station basis are desired.

Assume the following line fills and working lines:

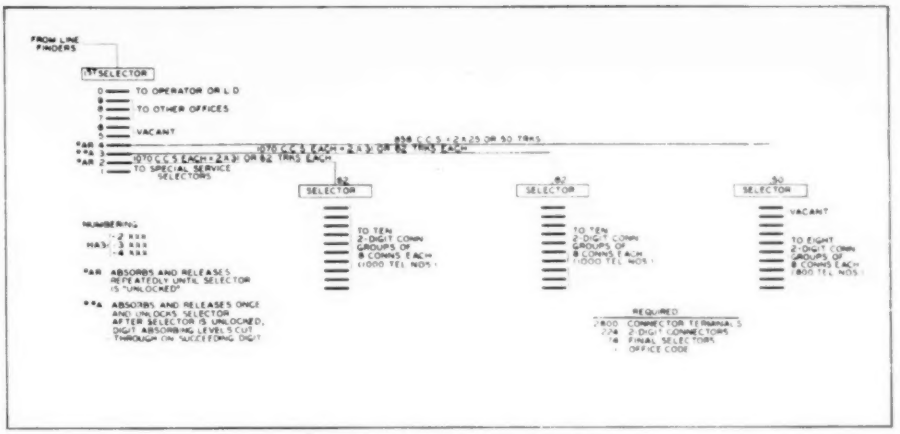

FROM LINE FINDERS
1ST SELECTOR
0 TO OPERATOR OR L.D.
8 TO OTHER OFFICES
7
6
5 VACANT
*AR 4
*AR 3
*AR 2
1 TO SPECIAL SERVICE SELECTORS
2ND SELECTOR
3RD SELECTOR
4TH SELECTOR
VACANT
TO TEN 2-DIGIT CONN GROUPS OF 8 CONNS EACH (1000 TEL NOS.)
TO EIGHT 2-DIGIT CONN GROUPS OF 8 CONNS EACH (800 TEL NOS.)
NUMBERING
*AR ABSORBS AND RELEASES REPEATEDLY UNTIL SELECTOR IS "UNLOCKED"
**A ABSORBS AND RELEASES ONCE AND UNLOCKS SELECTOR AFTER SELECTOR IS UNLOCKED, DIGIT ABSORBING LEVELS CUT THROUGH ON SUCCEEDING DIGIT
REQUIRED
2600 CONNECTOR TERMINALS
274 2-DIGIT CONNECTORS
16 FINAL SELECTORS
1 OFFICE CODE

Fig. 2. Terminal-per-station.

Class	Main Sta.	T/L Basis Line-Fill	T/L Basis Lines	T/S Basis Line-Fill	T/S Basis Lines
1-party	550	1.0	550	1.0	550
2-party	300	1.5	200	1.6	188
4-party	1,750	2.6	675	3.1	565
	2,600	1.82	1,425	2.0	1,303

The number of 200-point linefinder groups would be as follows:

	Equip. Fill	Line Equip. Required	No. of Grps.
Terminal-per-line	97%	1470	7.5
Terminal-per-station	97%	1350	7.0

The number of connector groups would be as follows:

	Equip. Fill	No of Grps.	Main Sta. per Grp.	CCS per Conn. Grp.	*Connectors Required
Terminal-per-line	89%	16	163	187	12
Terminal-per-station	93%	28	93	107	8

*One delay per 100 calls.

Fig. 1 shows the arrangements of the proposed office on a terminal-per-line basis and *Fig. 2* shows this office on a terminal-per-station basis. The final selector, connector and terminal arrangements and requirements, are indicated. The comparative equipment required in the two plans is as follows:

	Terminal-Per-Line	Terminal-Per-Station
Line Equipment	1,500	1,400
Line Finder Groups	7.5	7.0
Final Selectors	171	174
Connectors	192	224
Connector Terminals	1,600	2,800

It is thus seen that in the above example, the terminal-per-station arrangement requires 17 per cent more connectors, 2 per cent more second rank selectors and 75 per cent more connector terminals than the terminal-per-line arrangement. The terminal-per-line arrangement, however, requires two central office codes, while the terminal-per-station needs only part of one. The better line fills of terminal-per-station save 100 line equipments over the terminal-per-line arrangement. All connectors used in the new terminal-per-station office might be of the straight line type or of the frequency-per-terminal type costing only 60 to 65 per cent as much as a terminal-per-line connector (These types of connectors will be taken up later herein).

Average Investment Increases: The excess investment required in terminal-per-station equipment over that required for terminal-per-line will, of course, vary greatly between central offices, depending on size of office, on party line fills, connector terminal fills, number of connectors per terminal-per-line connector groups, arrangement of the selectors preceding the connectors, grade of intercepting service to be given in the terminal-per-line office, etc.; *but particularly in the ratio of total main stations to total lines.*

For typical new Strowger offices of medium size, terminal-per-station investment over terminal-per-line is generally from 5 to 15 per cent of the total investment in the central office. The cost of converting existing terminal-per-line offices to terminal-per-station may increase the central office investment from 12 to 25 per cent.

These increases in investment, however, in most cases, are justified by the many advantages of terminal-per-station operation, as discussed previously herein. It is, of course, difficult to put a dollar value on these advantages, even those effecting operating expense saving, as they will vary with local conditions. Many of the advantages are in the nature of improved or modernized telephone service to the subscribers.

(To Be Continued)

The Cost of Crime

J. Edgar Hoover of the FBI recently stated: "We complain about high taxes, but last year crime cost every man, woman and child in the United States $122.00, or a staggering estimated total of twenty billions of dollars. Perhaps this figure could become more meaningful if we realized that for every $1.00 spent on education, crime cost $1.46; and for every $1.00 which went to the churches of the nation, $13.00 went to crime." Mr. Hoover said this in a speech urging improvement in crime control—especially as it affects the parole system and the problem of the repeater. And the challenge of this, he added, "is a challenge to all of us."

Available to All

"By cultivating an interest in a few good books which contain the result of the toil or the quintessence of the genius of some of the most gifted thinkers of the world, we need not live on the marsh and in the mists. The slopes and ridges invite us."—T. STARR KING.

Universality of Love

"Every charitable act is a stepping stone toward heaven."—BEECHER.

Section 19 (Continued)

CAUSE B. *Testing wrong extension or not testing all extension lines leading to department.*

CAUSE C. *Report given on wrong cord.*

CORRECTION—Are designation cards in good condition? Are all cellulose windows clear and clean? Is attendant attentive and interested in her work? Have attendant write memo on call when delayed. Is attendant associating key and cord on which a report is to be given? Is the board equipped with alternate red and white cords?

(13) *Slow Answers by Extension Users.* Such faults are irritating and give the calling party a very poor impression of the firm as a whole. The caller may not wait. They increase the attendant's work time, increase her progress reports and annoy the calling party. Result in inefficient use of equipment. They adversely affect the entire operation of the PBX system, slowing down the attendant and causing equipment congestion. They are the cause of overtime on station-to-station long distance calls.

CAUSE A. *Failure to make an immediate attempt to complete call.*

CORRECTION—Attendant should know that any unnecessary delay of call is poor operating.

CAUSE B. *Faulty ringing.*

CORRECTION—Does attendant use proper technique in ringing? Does she know the length of ring and the intervals between rings?

CAUSE C. *Poor location and condition of records.*

CORRECTION—Are all records that are required by attendant accurate, complete, legible, conveniently located and readily usable?

CAUSE D. *Failure to put up connection with all the speed possible, when extension previously reported busy becomes available.*

CORRECTION—Does attendant write memo of call details when caller is holding the line, awaiting completion to a busy extension? Does she test busy extensions at prescribed intervals?

CAUSE E. *Extension users' practices.*

CORRECTION—Check the speed of extension users' answers. Are extension telephones located conveniently for answering? Encourage placing responsibility for answering the extension at all times. Does extension user inform attendant when he leaves his desk for any appreciable time? Convince the

extension users of the need for prompt answering and how he can help the over-all service and make the attendant's job more pleasant and much easier.

(14) *Failure to Answer Recall Signals Promptly.* To the caller, answering recall signals slowly is an irritating practice caused by an indifferent and inefficient attendant.

Recalls indicate that the attendant's immediate attention is needed on an existing connection. Something may have gone wrong with the call—a faulty connection, a wrong extension reached, a cut-off may have occurred on a trunk connection, or extension user wants to transfer the call to another extension. Therefore, this signal is of major importance and should be given precedence over all other signals.

CAUSE A. *Failure to observe order of attention to signals.*

CORRECTION—Instruct attendant on the order of attention to signals that appear simultaneously: (1) Recall, (2) progress reports, (3) incoming trunk, (4) extension, (5) disconnect.

CAUSE B. *Inattention.*

CORRECTION—Check ventilation, heating and lighting conditions for fatigue factors. Personal calls on the switchboard can be primarily responsible for poor service of every kind, including slow answers to recall.

CAUSE C. *Eyes off the board unnecessarily.*

CORRECTION — Does attendant know the proper method of taking and leaving her position? Does other work take attendant's attention from her primary job—that of operating her board? Are reference materials handily located and easily usable?

CAUSE D. *Dim cord signals.*

CORRECTION—Check lighting conditions. If signals burn dim for other reasons, report to "Repair Service."

CAUSE E. *Improper use of buzzer.*

CORRECTION—Does attendant keep buzzer key operated when traffic is light or when she has other work to perform? Explain why it is important that the buzzer should not be operated unnecessarily.

CAUSE F. *Poor location or condition of records.*

CORRECTION—All records should be conveniently located to the attendant, easily usable. They should be accurate, complete and legible.

CAUSE G. *Hiding cord signals with hands, tickets or otherwise.*

CORRECTION—Train attendant to keep hands off keyshelf. Arrange for tickets to be standard in size and see that ticket holders or ticket bins are provided where needed.

CAUSE H. *Extension users' method of flashing.*

CORRECTION—If necessary, teach extension users the proper method of "flashing" the attendant.

(15) *No One on Line on Outgoing Calls.* The extension user should remain on the line at all times. It's the worst of all of the extension user's bad habits. It's extremely discourteous to make the called person do the waiting. It causes extended arguments between attendants whose extension users demand that kind of service.

Generally, the call will be hurried to its completion if the calling party remains on the line. He can furnish information that will speed the call to its conclusion.

When extension user stays on line, he prevents obvious inefficient use of facilities.

The present-day station-to-station toll connection calls for the extension user remaining on the line, if he is to avoid a waste of chargeable time. It also is a wasteful use of a busy attendant's time.

CAUSE A. *Extension users do not dial or place their own calls.*

CORRECTION—Attendants should dial or place calls for only those extension users who are not permitted by management to dial or place their own calls. Do extension users need instructions on how to place telephone calls? Encourage extension users to keep a list of the telephone numbers they call frequently—if necessary, assist in the preparation of the list. Work with attendant toward abandoning such practices as might promote extension users' desire to have attendant place calls.

CAUSE B. *Extension user does not hold the line when the attendant dials or passes the details of the call he has originated.*

CORRECTION—Encourage extension user to hold line when he places call, especially on long distance calls. Instruct attendant on how they should follow procedures that will assist in keeping the extension user on the line. Have attendant ring back calling extension while the local or toll operator is completing the call.

(Section 19 to be continued next week)

today's

Highlights

of finance-taxes-business trends

by Willard F. Stanley

HIGHER INTEREST RATES: The trend in interest yields on new issues of utility funded debt has been distinctly disappointing. The mildly favorable trend of June and early July has been succeeded by a definite softening in bond prices. This is not attributable to governmental monetary policies, which have continued to point toward slightly easier money. It is still possible new policies before election may trend toward easing rates for the benefit of the borrower. The increase in funded debt yields has resulted primarily from an excess supply of senior security offerings, both of utilities and industrial corporations.

For the month of August, the Investment Dealers Digest shows 218 million dollars of utility funded debt offerings made or scheduled, plus about 291 million dollars of industrial debt to be distributed. This is unusually high for the summer months, and augurs ill for any quick "right-about-face" in long-term money rates until well into September at least. July was also a crowded month from a new offerings standpoint, with substantially more than normal seasonal amounts. Several issues did not "go" so well, and the underwriting syndicates had to be dissolved with considerable amounts of bonds still unsold, resulting in a decline in the price of the bonds to well below the original offering prices.

Our customary Wall Street Journal tabulation of 13 new utility funded debt issues shows current bids at an average yield of 13 decimals (.13 per cent per annum) above the original offering prices. This is distinctly less favorable than such comparisons for any recent month and almost equals the peak rise in such yields experienced in April—of around 16 decimals.

We cannot continue our optimism about near-term trends for funded debt interest on new utility offerings. If the markets can mark time for awhile that is about all that can be hoped for or expected. September offerings are not yet overloaded, although many offerings may be added as time goes by. Seventy-six million dollars of utility funded debt and 61 million dollars of industrial indebtedness are scheduled for September offering, according to the Aug. 11 Investment Dealers Digest.

Most significant of all, the successful bid for the Triple A rated bonds of Consumers Power was on a basis only a shade under 4 per cent, the highest yield for this quality of bond in 25 years or so. Only silver lining to the heavy clouds is that the increase in rates is so drastic as to indicate odds in favor of some alleviation in the near future. Some issues have been postponed, awaiting better days, and this may serve to relieve some of the pressure in the next few weeks. We suggest that utilities desiring to raise senior capital in the near future proceed to make the offerings normally, neither hurrying nor deferring them. If such funds will not be needed for more than six months then there would seem no need for hurry, but if the money is wanted relatively soon a gamble on better interest rates seems inadvisable.

Mr. Stanley, formerly financial vice president of Southwestern Public Service Co., an electric utility with over 160 million dollars in assets, is president of Corporate Services, Inc. of New York City. He is a member of Controllers Institute of America and New York Society of Security Analysts. He serves on three committees of the Controllers Institute having to do with federal taxation, social security and finance management. His articles are appearing once a month in TELEPHONY.

COMMON STOCK EQUITY MONEY: Prices and yields still hold firm in this area, and utilities continue to have every incentive to raise this type of money promptly, apparently with more to lose than gain by deferring offerings in the hope of attaining even better market levels.

* * * *

EGYPTIAN BLUES: The stock market has been "singing" them for the past several weeks and this affliction will probably cotinue for some time, for these things always take a long while to work out. These "blues" have been sufficient to temper the otherwise general enthusiasm and to restrain the market from running away on the upside. England and France seem quite serious over Suez but it's hard to believe it will come to actual blows. The "Big Three" seem to be harmonizing well in London, but the song they'd best like to harmonize is "Nasser's in the cold, cold ground."

The steel strike had a dual attraction; first, while it lasted, it indicated the beginning of an inflation spiral; then, when it was over, there was the advantage of "business as usual" plus increased prices (although not as much of an increase as had been anticipated).

First six months earnings make pleasant reading in most cases. First National City Bank of New York announces that 682 companies reported 9 per cent aggregate improvement in earnings over 1955 for the first six months of this year. But for the second quarter, ended June 30, the increase was limited to 4 per cent over the similar 1955 period. Business and earnings kept improving throughout 1955 so that the comparisons are with better earnings as time moves on, making it increasingly difficult to show favorable comparisons. While 70 per cent of the companies showed increases for the six months, our own casual check of comparative earnings for the June quarter indicates a trend more mixed than previously, with an increasing number of companies (principally the smaller ones) showing unfavorable comparisons.

New York Times 50 combined stock average was about 4.5 per cent above Dec. 31, 1955 (at Aug. 17), this comparing with an increase of about 5 per cent above the year end level at July 18.

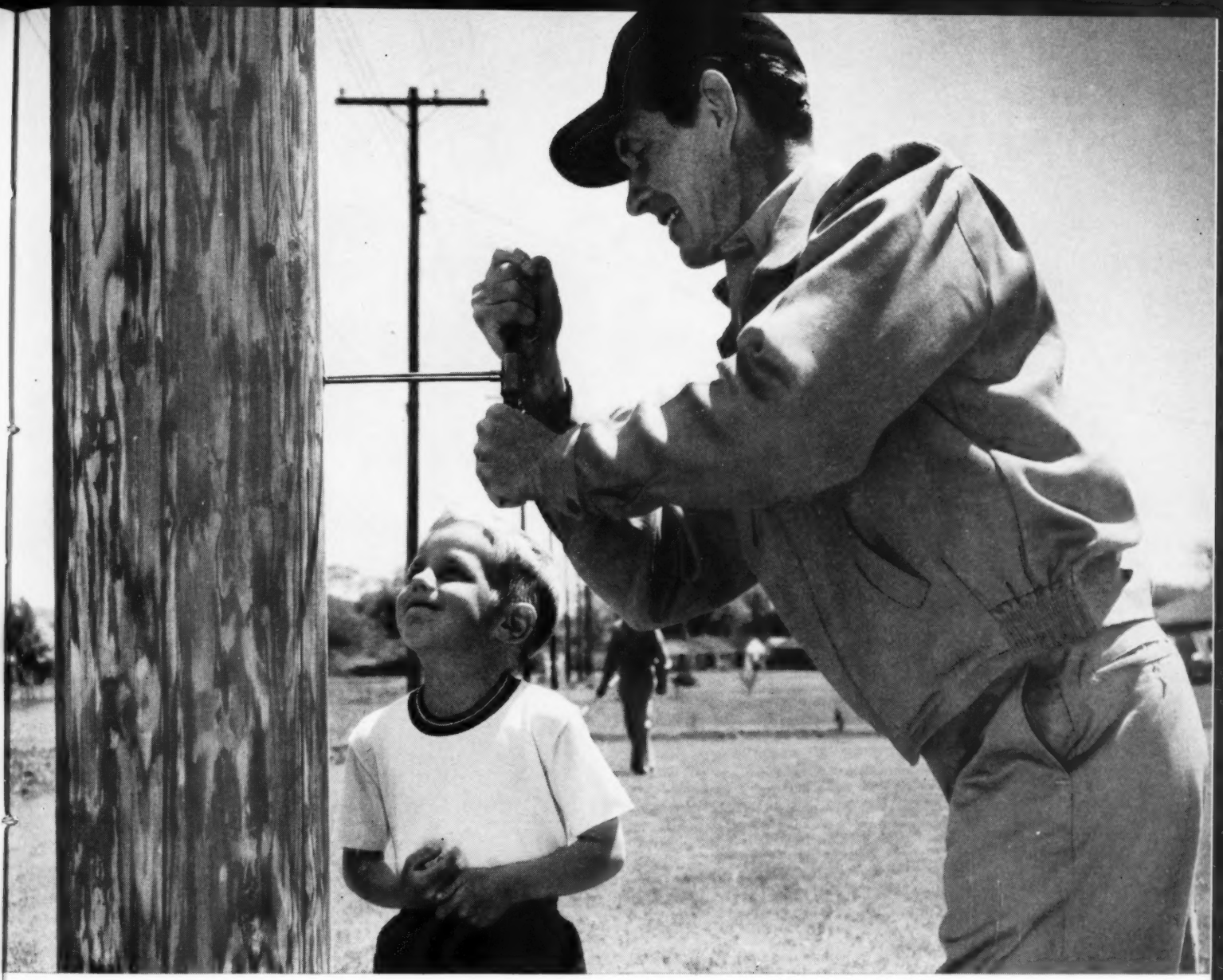
* * * *

MORE ABOUT THE DEPRECIATION REGULATIONS: The new tax depreciation regulations provide in detail for the accounting and treatment of gains and losses on the retirement of assets. Retirements are classified as either normal or abnormal. Normal retirements are defined as those which occur either during the range of years used in fixing the depreciation rate or when the asset reaches a condition where it is the taxpayer's policy to customarily retire it. Generally, if an asset is disposed of before its normal span of years because of a casualty, or extraordinary obsolescence, it is deemed an abnormal retirement.

When the assets are placed in a group, classified or composite account for tax depreciation purposes, regardless of the method of tax depreciation adopted, then when an asset is retired from such an account (normally or abnormally), the asset account is reduced by the cost and, if such retirement is normal, the gross asset value is charged to the depreciation reserve, less proceeds of salvage, if any. In effect, the gain or loss on such retirement is reflected in the reserve and not reported for income tax purposes.

On the other hand, if the retirement is abnormal, the gain or loss is to be reported for tax purposes, based on cost, less accumulated depreciation computed by applying to the expired life of the asset the rate of depreciation allowed for the account in which the asset was included. Such depreciation is then deducted from the composite reserve.

The accounting and treatment of gains and losses outlined above is no different from that followed in the past before the new methods of depreciation were introduced, where a multiple asset account used an <u>average</u> useful life as the depreciation rate. However, where a taxpayer uses <u>maximum</u> life of the longest lived asset in a multiple asset account, the regulations appear to deprive the taxpayer of certain rights existing prior to the new regulations. There will be more, subsequently, about this, and about the depreciation regulations in general.



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When this youngster asked why we were drilling a hole in the pole, I knew the simplest answer I could give him would bring on another question . . . and it did.

Of course, it wouldn't be so tough to explain to another utility man why we drill holes in our poles. You see, my company protects all its poles with PENTAchlorophenol preservative. With PENTA, you can actually measure the amount of protection that's left in a pole at any particular time by analyzing borings taken from the pole.

That way, we know how well protected a pole is when we buy it, and we can check it anytime afterward to measure its remaining service life. Takes the guesswork out of maintenance and replacement planning for our company.

There are a lot of other reasons why we use PENTA-treated poles. Under any soil or climatic condition, they last for years and years. They're clean—present an attractive appearance, are easier to handle, install and climb.

You'd think all these PENTA advantages would cost quite a bit, but they don't. You can buy PENTA-treated poles for the same price you'd pay for poles treated with ordinary preservatives and you can get them from pole suppliers all over the country. Why not find out more about them? Write to THE DOW CHEMICAL COMPANY, Midland, Michigan, Dept. PE982C-1.

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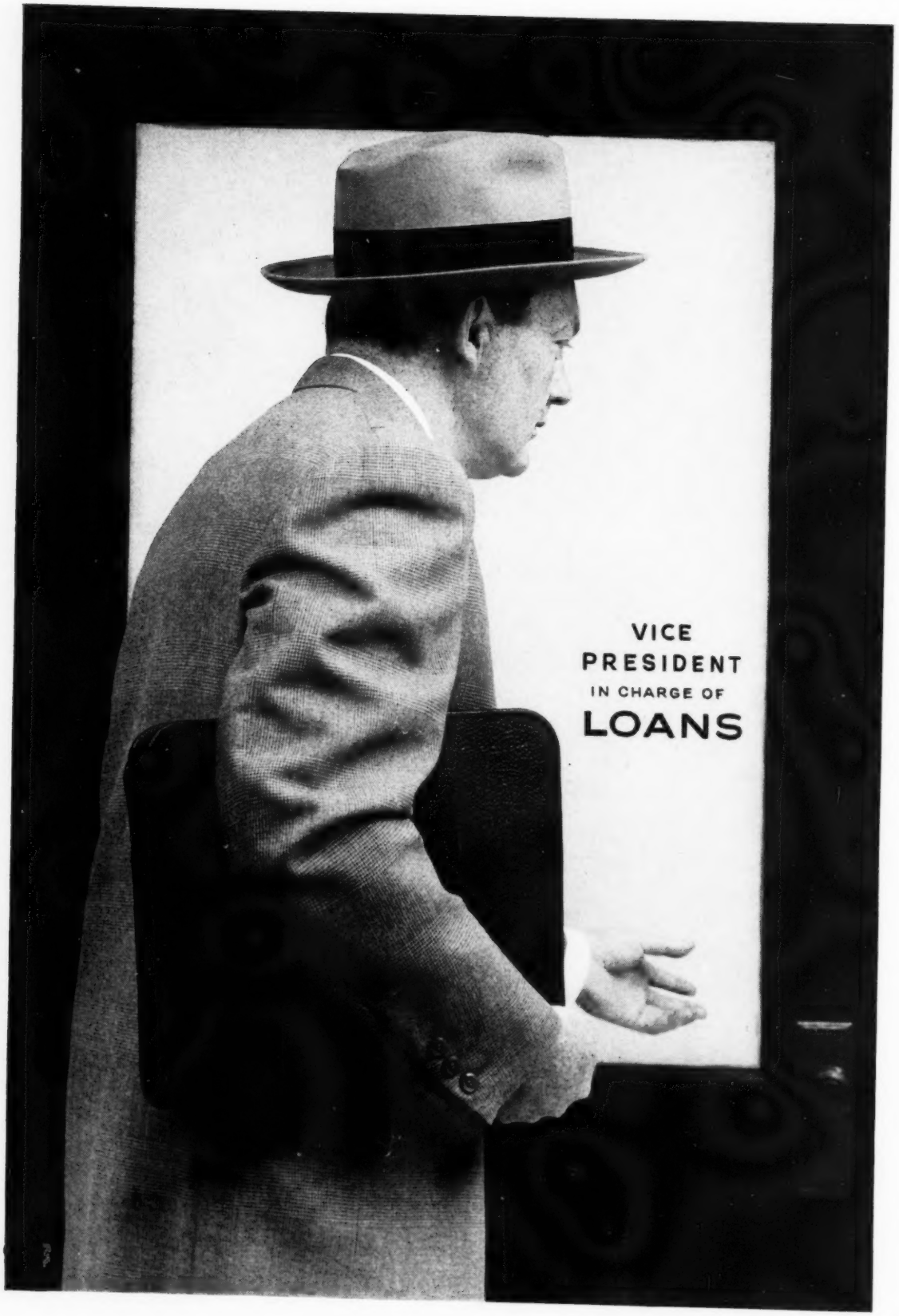
WHAT HAPPENS WHEN



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THROUGH THIS DOOR?

THE day you ask for money to buy dial equipment is an important one for your company... but what about the man behind the door—the man who can say "yes" or "no" to your plans?

The man you want to borrow from will base his decision on many factors: The quality of your management, your earning potential, your telephone experience, your subscriber relations, your operating ability, *and the reputation of the dial switching equipment you plan to buy.*

If you're planning to buy Strowger Automatic, you can approach any lending agency with the positive assurance that you have chosen the most well-known, dependable, and proved-in-service switching equipment available.

Consider this. It can mean much to you. And if we can help you in any way, please let us know.

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ORIGINATORS OF THE DIAL TELEPHONE

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Mobile unit equipped with dial sender. This permits driver to selectively call drivers of other mobile units or to remotely control fixed devices. Photo by Electrical Communications, Inc.

Mobile-Telephone Selective Signaling Systems

By LEO G. SANDS
Radio Communications Consultant
San Francisco, Calif.

IN ADDITION to conventional fixed telephone service, there is also an expanding market for the telephone industry in the mobile telephone field. Bell companies and only very few Independents have cultivated this field. If this is a profitable or potentially profitable field for the Bell companies, one wonders why many Independents have not shown the same enthusiasm. There have been good reasons, some which concern finance and others which concern technical obstacles.

From the financial viewpoint, a reexamination of the facts is in order. The Radio Corp. of America offers private mobile radio systems for lease. Raymond Rosen Engineering Products Co. of Philadelphia leases private mobile radio systems in several eastern states. It is reported that Motorola has instituted a plan for leasing radio equipment.

It can be taken for granted that RCA, Motorola and Raymond Rosen do not lease radio equipment without a profit motive. Their rates include maintenance since RCA operates the RCA Service Co. and Raymond Rosen has its own service department.

The Independent telephone company is in a priority position to provide mobile telephone service and surely can lease private mobile radio systems profitably if those who are not common-carriers can do so. The problem then is one of maintenance. That problem can be quickly overcome by farming out radio maintenance to capable radio service organizations of which there are many. Some for example, maintain mobile radio units for less than $10 per month including replacement tubes and parts.

The technical problems are not insurmountable nor do they require heavy expenditures for engineering talent. Most radio equipment manufacturers are delighted to do most of the systems engineering gratis if they are assured of the sale of the equipment.

One of the major technical problems has been that of selective signaling of mobile telephone service subscribers and those who subscribe to radio paging or dispatching service.

The Bell companies employ a selective calling system which has proved to be quite satisfactory for their purposes. It requires the transmission of two tones, 600 and 1,500 cycles, transmitted alternately to operate a special type of selector, widely used in railroad dispatch and message telephone lines.

This selective calling or signaling system has the limitation that it requires the acquisition of specific brands and types of equipment and leaves very

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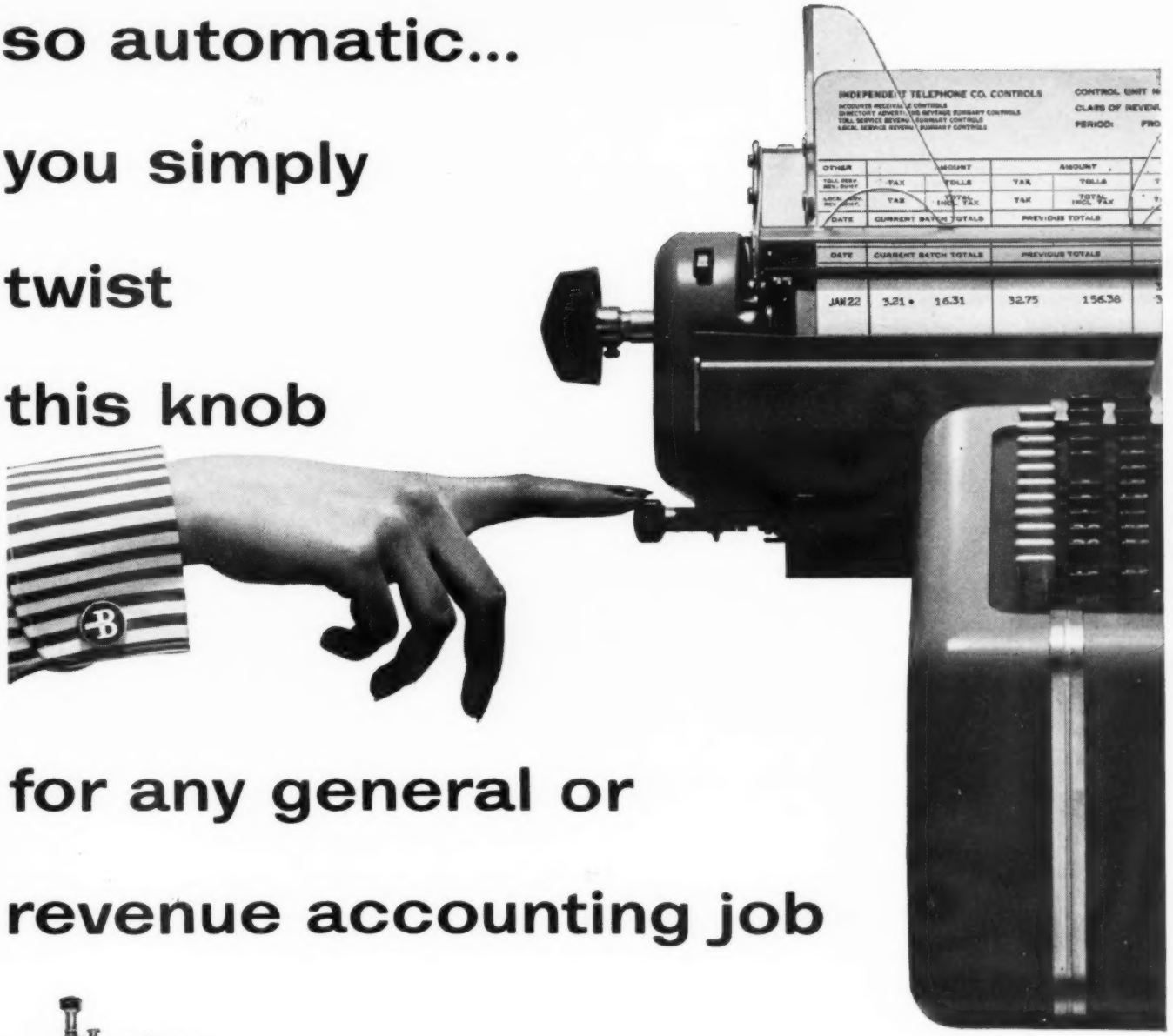
you simply

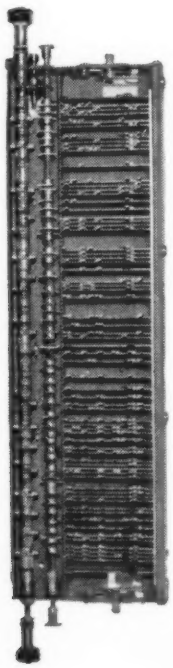
twist

this knob



for any general or

revenue accounting job



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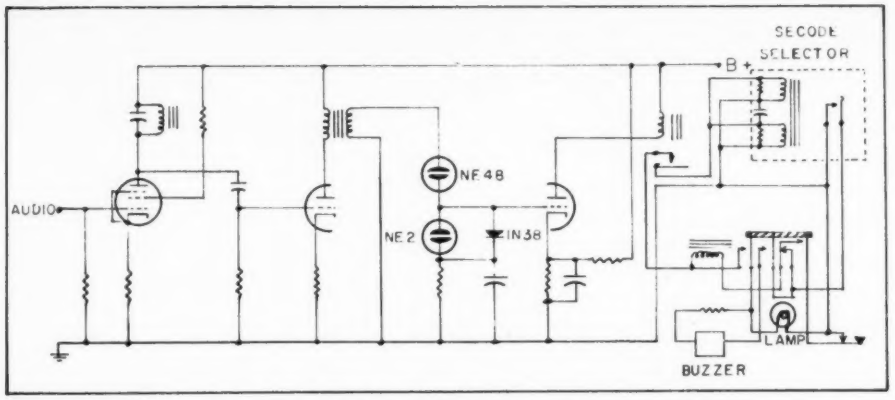


Schematic diagram of the decoder which responds to interruptions of a continuous tone. Since the system steps to the absence of tone, it is claimed to be impervious to noise pulses.

little choice on the part of the Independent interested in getting into the mobile telephone business. There are other selective calling systems, some which work well and some which are plagued with operational bugs. Obviously, for telephone service only a dependable system can be considered.

Basically, the problem is one of providing facilities for the mobile service operator to signal one out of many mobile service subscribers without unnecessarily alerting other subscribers.

It sounds easy. There are several methods which can be employed to selectively open and close the audio circuits of a radio receiver or to operate alarm circuits from a distant transmitter. However, when one or both are mobile, which means that physical shock, varying signal intensity and high noise levels may be encountered, difficulties may be experienced.

A mobile telephone selective calling system consists of facilities at the central office for individual signaling of mobile service subscribers and facilities at each mobile unit for responding to the specific code for that mobile unit. When a specific mobile unit's number has been dialed or otherwise selected, the decoder at the particular mobile unit operates a buzzer, bell, horn or other audible device. It also trips an indicator lamp which remains lighted until the subscriber picks up the handset and acknowledges the call, even several hours later. The audible signal, however, shuts off automatically when the base station signal is cut off. The decoder unit also restores itself to the "off" or "stand-by" position.

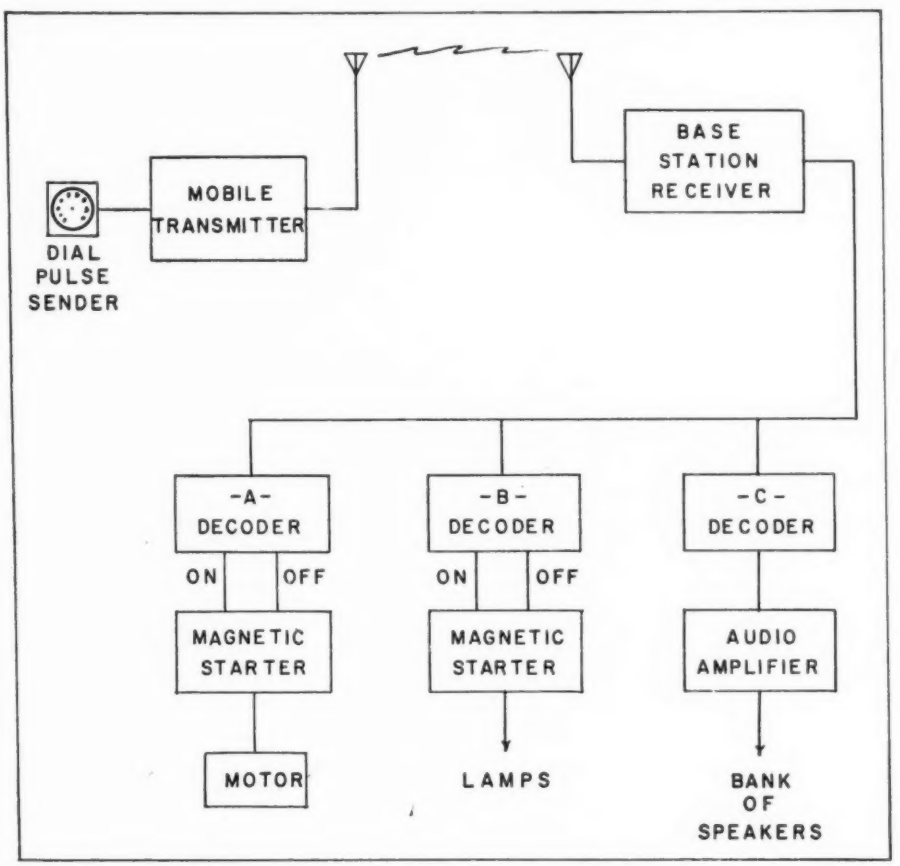
In most mobile telephone systems, selective ringing of a great number of mobile units is provided, but eavesdropping by other subscribers on the same radio channel is also possible. With any suitable receiver tuned to the same frequency and within range the conversations can be heard. This is true of nearly all selective calling systems unless provisions have been made for locking-out all except the desired receiver. However, receivers not equipped with the lock-out feature can still pick up the transmissions.

Selective calling systems other than those used by Bell companies may also utilize pulsed tones which actuate stepping relays or selectors. Frequency selective systems are also used. Both types can be very effective but both types have also had their share of troubles.

A selective calling or signaling system in mobile radio-telephone applications must work under limitations not imposed upon it in wire line or microwave point-to-point service. The decoder, whether a pulse counter or a frequency selective device, is subjected to shock and vibration when installed in a vehicle. The power source is not constant. The signal to noise ratio varies widely. The actuating signal must be within the voice range to comply with FCC regulations.

There are several types of frequency-selective systems. Some transmit a single tone for each station or group to be selected. Others depend upon two or more tones for each selection. Tones may be of short or long duration, depending upon the system employed. Frequency selective systems generally respond faster than dial systems but are usually capable of fewer individual selections.

One of the earliest and simplest mobile radio selective calling systems to appear on the market is termed "Instant Call." A tone transmitted from the base station at the start of a transmission opens the squelch circuits of "Instant Call" equipped mobile units which are provided with plug-in tone filters for the proper frequency and which are within communicating range



Apparatus at fixed locations may be controlled via radio from a vehicle. For example, by dialing the proper combination, the driver or a passenger in a suitably equipped vehicle may (1) start and stop a motor, (2) turn lamps on and off, or (3) turn on a paging system, permitting the driver to address persons at a distant fixed point.

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Branches and Agents throughout the World
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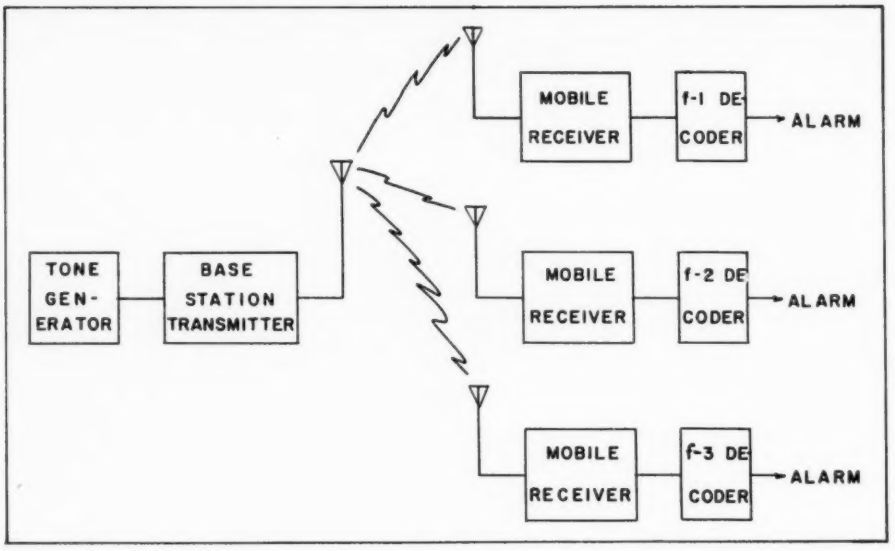


A tone type selective calling system depends upon the transmission of a different tone or combination of tones for individual or group sigaling of mobile units. The base station is equipped with a tone generator and the mobile units are provided with filters.

and are tuned to the base station transmitter frequency.

The squelch circuits of all other "Instant Call" equipped mobile units with filters for other tone frequencies remain closed. Thus the operator of the base station can transmit tones of different frequency, one at a time to alert vehicle drivers individually or in groups. Since the number of different tones within the voice band which can be employed is limited, this particular system is generally used for calling mobile units as in dispatching systems, by groups. Plug-in filters permit quick changing of response tone.

Once the squelch circuits of a group of vehicles are opened by a particular tone, the base station operator verbally calls out the number of the desired vehicle. The driver in responding removes his handset from its cradle. Subsequent transmissions to that vehicle from the base station are made without the calling tone because the tone operated squelch controls only the loudspeaker circuit. The handset is used for all communications except for alerting the desired driver. Thus, passengers in a particular vehicle and occupants of all other mobile units do not hear the transmissions directed to the called driver.

Sometimes, all the mobile units of a fleet use the same calling tone. The loudspeakers of all the mobile units will respond to the initial call. Only the called driver should respond by using the handset. The loudspeakers of all of the cars in the fleet will be muted until the calling tone is again transmitted.

Another tone type selective calling system is the one developed by Hammarlund which utilizes two or more tone pulses, one for gating and the other for selection. Unless the mobile decoder unit has been made responsive to the gating pulse, the speaker or alarm circuits are not activated by subsequent pulses. This kind of design resists false operation by noise or speech.

The tone type selective calling system developed by Motorola makes use of frequency sensitive relays in the mobile unit. The General Electric and RCA selective calling systems are also of the tone type and utilize filters and electronic circuitry for selection of an individual or a group of mobile units.

A new type of selective calling system developed by Electrical Communications, Inc. of San Francisco can be used with any make of mobile radio equipment. It can be used for selectively signaling up to 10,000 mobile units from one or more base stations.

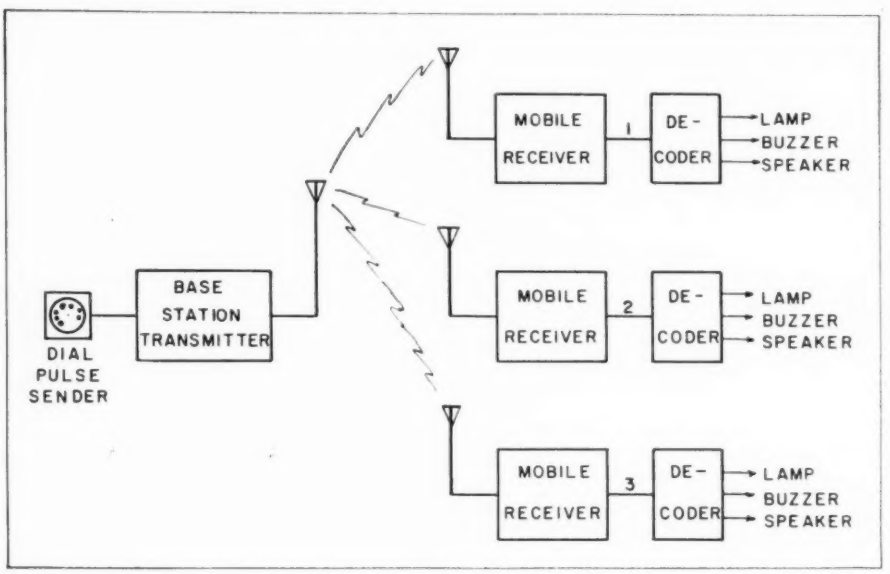
The new system employs a telephone dial or automatic code sender for interrupting a 590-cycle tone which is fed to the base station transmitter. In the standard model the dial and tone generator are combined into a single unit suitable for attachment to the audio input of any conventional transmitter. No special apparatus is required at the base station for reception from mobile units.

The mobile units are equipped with identical decoders known as radio pulsing units each of which can be set to respond to a different code.

The major component of the radio pulsing unit is a Secode type 49-HS selector, a unique pulse-operated electro-mechanical switch. This selector can be set to respond to any of over 10,000 dialed codes in any sequence of numbers whose total does not exceed the 42 steps of the code wheel. The codes can be changed at any time without tools by shifting of contact pins to the desired index holes of the code wheel.

These selectors can be furnished with one to four code contacts so that up to four different functions can be controlled by one selector. For example, the base station operator can dial a number to signal the driver of a specific vehicle. In case he does not receive a reply, he can dial another number which will cause the mobile unit transmitter to be turned on automatically for a short period to confirm that the base station is being received and that

(Please turn to page 37)

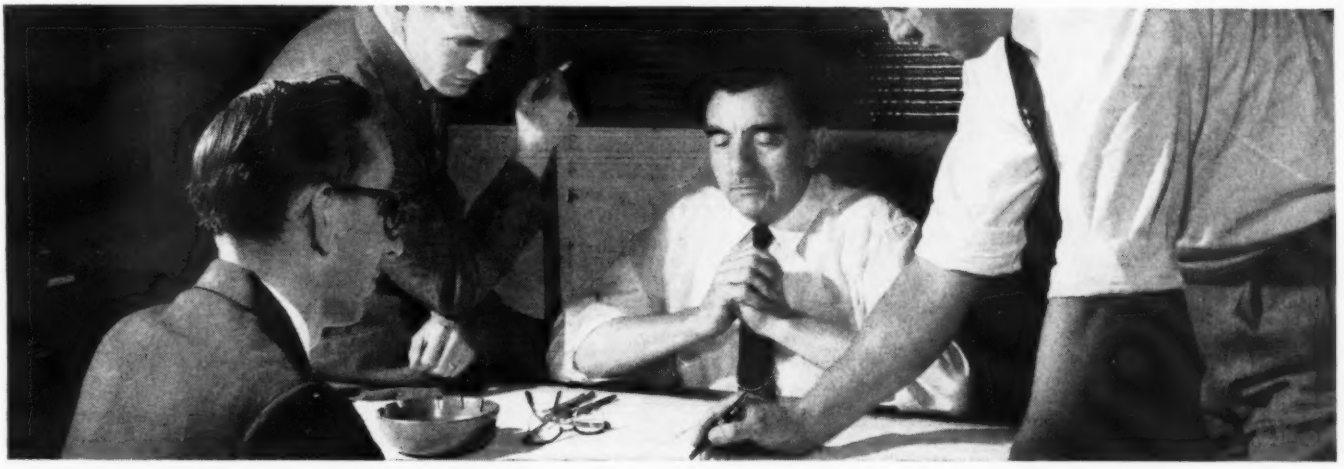


In a dial type selective calling system each mobile unit is responsive only to a predetermined combination of pulsed tones. The base station is provided with a tone generator and a dial. The mobile units are equipped with electro-mechanical decoders.

XUM

Here are CARRIER* systems

engineered by telephone men



for telephone men

The engineers you'll meet at Automatic Electric and Lenkurt *know* the telephone industry because they are telephone men themselves. With first-hand knowledge of telephone operations, these men are in a position to help solve the transmission needs of telephone companies —regardless of size. They *specialize* in the engineering, manufacture, and installation of systems adapted specifically to meet telephone toll plant requirements.

And, because they have available a complete line of systems, they'll be able to recommend the *best* system for *you* . . . whether it's carrier telephone equipment for open wire, cable, or radio . . . or radio equipment itself. Why not give them a call? You'll find they talk your language.

Address: Automatic Electric Sales Corporation, 1033 West Van Buren St., Chicago 7, Illinois (HAymarket 1-4300). *In Canada:* Automatic Electric Sales (Canada) Ltd., Toronto. *Offices in principal cities.*

* They're **LENKURT'S** MULTI-CHANNEL COMMUNICATION SYSTEMS, of course.

AUTOMATIC ELECTRIC

GENERAL SYSTEM INDEPENDENT

Originators of the dial telephone · Pioneers in automatic control

construction and maintenance DIGEST

- **Real cool sitting**
- **Easy dead-ends**
- **Pennies for power**
- **Protection plus**
- **Efficiency with low power**

Published every week to help you get the most out of your materials and supplies dollar

by C. J. Reynolds, Stromberg-Carlson Company

Two dividends are yours when you order supplies from Stromberg-Carlson. First, you get the protection of a double guarantee—ours and the maker's. This assures you of getting the finest products, backed by our 62-year reputation. Second, your support is used to further the art of telephony. We're knee-deep in this industry as a full-time job, not a side line, and your supply business plays a big part and helps us continue our research for new and better telephone equipment.

Cane-seat chair keeps operators cool, comfortable

Making the operator as comfortable as possible may not strike you as a "maintenance" problem – yet your service is much smoother when the girls are cool and relaxed.

This operator's chair has a cane seat, which is much cooler, cleaner and more comfortable than other types. It retains all the posture advantages for which Sturgis is famed. It is called the Sturgis SC-240.

The posture-curved, well-cushioned backrest is covered in genuine leather.

The exclusive Sturgis "Follow-Flex" feature automatically adjusts to the operator's every movement, supports her restfully all the time, discourages fatigue, keeps her at top efficiency.

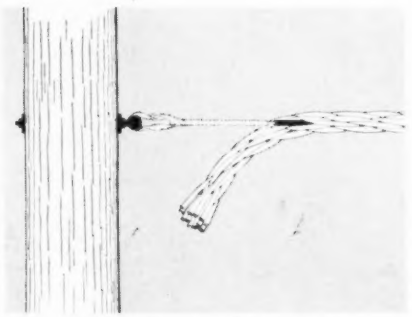
Other new and welcome features include a plastic-coated steel foot ring which retains its color, and a handy purse holder, available on request. Six seat heights, all adjustable.

Fast delivery available from your Stromberg-Carlson representative.

These dead-ends need no bolts

Your most inexperienced lineman, using the Preformed Dead-End, can make dead-ends faster and easier than an old hand using old-fashioned dead-ends.

No bolts, no special tools are needed. You eliminate costly loops, and your dead-end exceeds the strength of the wire or cable, even under sudden impact. It never relaxes its grip.



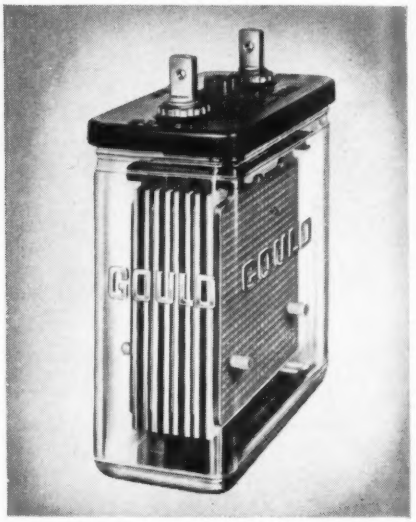
Available in galvanized steel, copperweld, stainless steel and bronze.

The Preformed Dead-End can be applied around an insulator, or inserted through thimble eye.

Available for self-supporting plastic cable, telephone line wires, rural distribution cable, and open wire.

Battery has lowest yearly cost

There's an easy way to save money on switchgear, signal and alarm systems or emergency light and power applications.



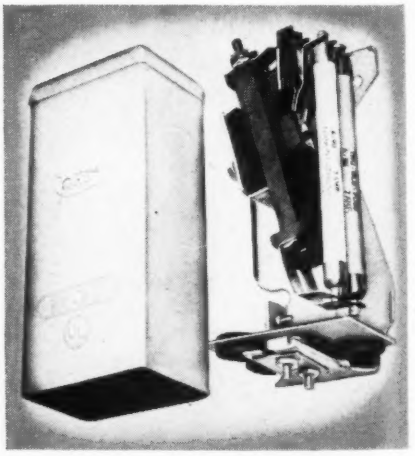
Gould Planté rolls up excellent service records—cuts maintenance to a minimum.

Amazing service records have proved that Gould Planté batteries have the lowest yearly cost of any battery you can use. Pure lead positive plates help make this possible.

For top operating economy, ask your Stromberg-Carlson representative for Gould Planté—the Aristocrat of Stationary Batteries.

The Cook RO-9U sub-station protector

Protection plus—that's Cook Electric Company's type RO-9U substation protector.



The most highly protective substation protector available.

XUM

Under load, they automatically tighten, assuring you a firm grip without damaging insulation of the wire.

FOUR TYPES are available:

Type "P"—for No. 17 or No. 18 AWG parallel.

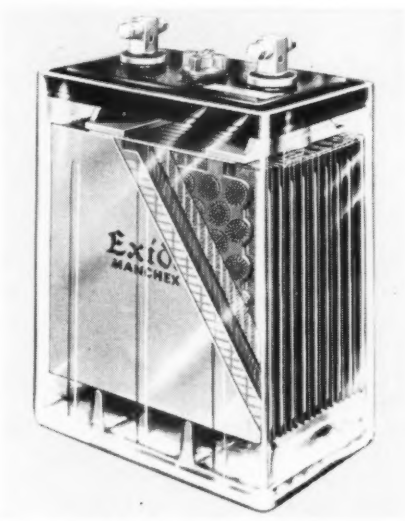
Type "PS"—for No. 17 or No. 18 AWG dumbbell wire and most other construction to No. 20.

Type "PR"—for No.'s 14-16 AWG twisted pair and parallel suitable also for No.'s 17-18 reinforced parallel neoprene-jacketed drop wire.

"D" Clip—Used to secure drop wire to itself for snub attachments.

Lead buttons mean lower costs

Only Exide Manchex Batteries have the positive plate with the buttons of corrugated lead tightly locked in the lead alloy grid several times more rigid than pure lead. Because of this outstanding design, the plates resist the mechanical strains bound to develop and retain their shape without growing or buckling. There is an ample reserve supply of pure lead which can be converted into active material as needed.



Special construction gives long life to Exide Manchex Batteries.

These and many other features combine to insure exceptionally long, trouble-free service.

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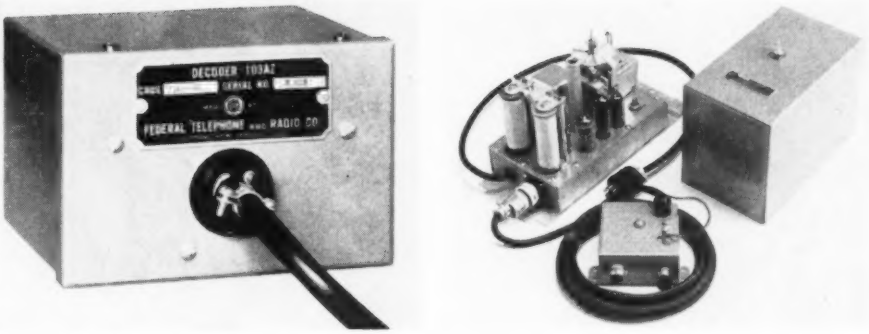


Two decoder units for dial type selective calling system. Left photo: Decoder manufactured by Federal Telephone and Radio Co. Right photo: Decoder of Electrical Communications, Inc., the 42 step selector of which is located at the far end of the decoder unit chassis. The small unit in front is the audible and visual signal. A buzzer sounds momentarily when the proper code is received. The lamp glows until cleared by the push-button at the right.

the mobile unit is apparently unattended at the moment. The decoder employs a unique circuit which prevents false operation by noise or voice signals.

Normally, the pulsing relay, which keys the selector, is energized. When a tone is received, the negative voltage across a capacitor in the circuit rises more than five times its stand-by value. This would normally cause the pulsing relay to become de-energized. However, the presence of the tone causes a strong signal to be impressed on the grid of the tube to which this capacitor is connected and the pulsing relay remains energized.

When the tone is broken or interrupted, the negative voltage across the capacitor takes over and cuts off the tube which energizes the pulsing relay. The pulsing relay is therefore de-energized each time the tone is broken and re-energized when the tone reappears, thus causing the selector to respond to the pulsed tone.

When the tone is taken off the air, the pulsing relay is de-energized and remains so until the capacitor loses its charge. Then the pulsing relay becomes re-energized opening its contacts and releasing the selector switch to normal.

A dial sender unit may also be installed in a vehicle for use with a mobile unit. This will permit the operator of the mobile unit to dial-call other mobile units via the base stations as well as to exercise remote control prerogatives. Although this type of application would be seldom encountered in general mobile telephone service, it may be a requirement of some leased radio systems.

A new type of mobile unit decoder is being developed which will be compatible with the Bell two-tone system and which will respond to the signaling of existing base stations.

Privacy of communications is not provided by most selective calling systems now in service. Privacy is not attainable in some systems unless a code or tone signal is sent out at the beginning of each transmission. The code or tone signal permits the squelch circuit to operate initially and is kept open by the base station carrier. When the carrier is interrupted or is cut off the air at the end of a transmission, the squelch, of course, drops out. To reopen the squelch, the proper code or tone must again be received.

Privacy can also be provided with a selective calling system using dial calling by arranging the circuitry so that unwanted receivers are locked-out by the decoder when the wrong code is received. Privacy is attained in some systems which use carrier only, such as that manufactured by Automatic Electric Co.

A call from a mobile unit to the base station may be initiated in the usual manner. However, to insure privacy the base station operator must dial the mobile unit's code to lock-out other mobile units.

As the radio channels available to both common-carrier and private mobile radio services become more crowded, the need for adequate selective calling becomes more apparent. The technical problems to make it work satisfactorily in most applications have been licked, not only through the perfection of selective calling apparatus but because improvements in transmitters and receivers have made mobile communications more stable and reliable.

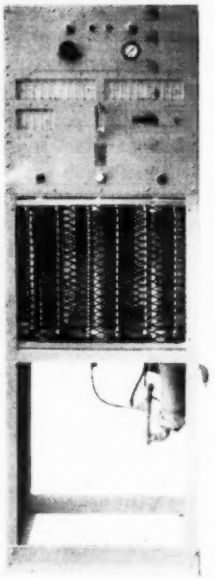
Virtue of Discussion

"A great thing is a great book, but greater than all is the talk of a great man."—EARL OF BEACONSFIELD.

for your cable maintenance needs

S&G MANUFACTURING CORP.

presents . . .

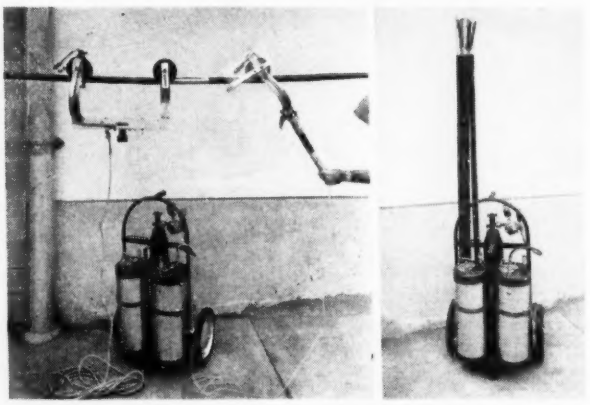


ACD AIR COMPRESSOR DEHYDRATOR

Exchange equipment designed to supply chemically dry air for telephone cables, aerial and underground, this unit can supply as many as 60 cables. Main feature is individual flow indicator for each cable showing volume of dry air consumed per cable per hour.

- Both Automatic and Manual Units available
- All desiccant containers are visual
- Air Purifier to eliminate oil mist
- Incorporates the latest safety devices

LEAK DETECTOR APPLICATORS



- Castings — aluminum for light weight
- Safety Brackets—steel galvanized
- Nozzle and Piping—brass
- Liquid Line—heavy wall plastic tubing
- Liquid Tank—steel galvanized and brass fittings
- Wheel — nylon bearings, self-lubricating

Applicators use a highly successful chemical type leak detector. Dual nozzles spray all sides of pressurized cable. Bubble cluster forms around leak within minutes and can be clearly seen from the ground. Air pressure bottle in cart supplies regulated pressure in solution tank at all times, can be adjusted for different height cables. For further information on this equipment, as well as the famous S & G Mobile Power Unit and Maintenance Generators . . .

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IN THE NATION'S CAPITAL

Continued from page 19

minority or so-called "allies" brought in from the outside for the purpose of engaging in such procedures. It is the right-thinking members who are the ones who will suffer the most, not only in the discrediting of their cause, but in their own consciences, from the shenanigans of the hooligans. It cannot be kissed off as boisterous pranks of bored teenagers.

How must some good brave men of the Portsmouth area feel when they look at themselves in the mirror and think about helpless women cowering under their switchboards from a wild rock-throwing mob? They must have felt awfully proud of themselves the next day—such valiant conduct! Surely this is a peculiar way to seek or enforce proper bargaining rights.

Then, too, there is the risk of actual criminal prosecution. Four conspirators —two of them union officers—found out about this last month, in the form of penitentiary sentences from the federal district court in Mississippi.

But the honorable striking union member, who must be in the majority, has even more potent reasons for regret that such things have occurred. The imputation of guilt to himself and to his union in the public's mind is not a light burden to be borne by any honorable man. The knowledge that he, even if by remote affiliation, has had a part in wantonly interfering with someone else's right to telephone service; the knowledge that such affiliation might even be extended to moral responsibility for the physical injury of innocent people—to say nothing of the unlawful destruction of property—must be a grievous thing to live with, for years perhaps.

It is hardest of all to understand what goes on in the mind of whoever does actually cut a telephone cable or stone a defenseless operator. Can such a person realize the full responsibility of his act—that he may be depriving some telephone subscriber, in sickness or distress, of a necessary call for assistance? Can he realize the possible consequences of a fatal fire or burglary or other crime which may be commited because police or fire emergency communications have been interrupted? Surely, no sensible man could think of such things and then deliberately pick up a hack saw or ax and chop a cable, or throw a stone at another human being in anger. The only other explanation is that he is *not* a sensible man, because he has *not* considered the possible consequences of his act.

A penitentiary sentence, public in-

famy, and disgrace would be equally unavailing on such a man. Why? Because he is a hot-headed fool. It is for the just union members, who *are* sensible men and women, to consider whether they want to be associated with such fools and quite possibly bear the blame, the ignominy, and other consequences of continuing such an alliance.

Newspaper editors and others in the area grow daily more indignant. They talk of stricter laws, or dramatic action by the governor. But law and government are not the ultimate remedies to this mess, which is essentially a moral problem. There is already enough law on the statute books if the police authorities really want to enforce it. What is needed most of all is some good old-fashioned applied morality—love of neighbor, respect for the rights of others. Sunday school stuff? Perhaps. But the strikers themselves will be the biggest losers and the main sufferers if they fail to heed the sound old Scriptural warning: "Who liveth by the sword, will surely perish by the sword." (Matt. XXVI: 53.)

Electronic Quality Control Symposium Announced

The third National Symposium on Reliability and Quality Control in Electronics is now scheduled for Jan. 14, 15 and 16, 1957 at the Hotel Statler, Washington, D.C.

The theme will again be a "Report to the Nation on the Present Status of Reliability." There will be two concurrent sessions for four periods during the day. Evening sessions, movies, plant tours and panel discussions will be on the schedule.

For further information contact Mr. R. G. Murrell, Melpar, Inc., Falls Church, Va.

'Future Telephone' Listing Offered in Nevada

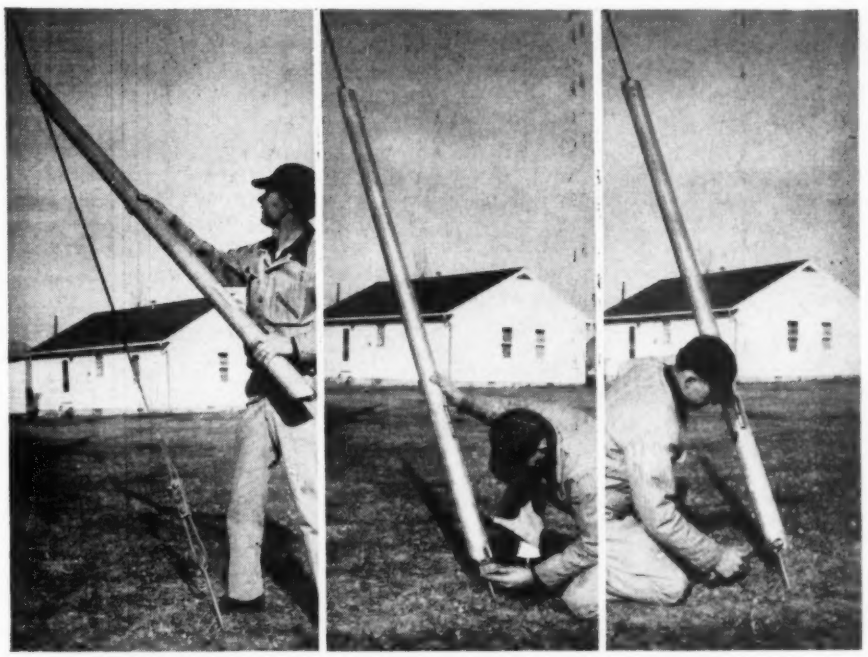
The Southern Nevada Telephone Co., Las Vegas, recently was reported to have worked out a service whereby local residents unable to obtain service from the company can at least have their names in the telephone book under provisions of the "future telephone" program.

The novel "future" program places the names of telephone applicants in the local directory, with telephone numbers listed.

Attempts to call the non-existent, but future numbers are referred to a special operator. The operator informs callers that the future telephones are slated for installation in the future.

Tighten only 1 easy-to-reach bolt to install the CHANCE MONO-BOLT GUY GUARD

When a groundman installs a Chance Mono-Bolt Guy Guard, he has only three things to do:



1 Slip the flanged hook over the guy wire.

2 Place clamp on anchor rod and slide it into the slot at bottom of guard.

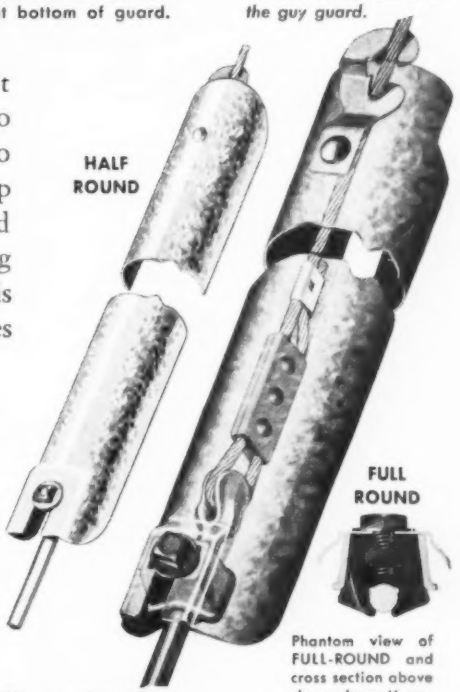
3 Tighten this one bolt at the *lower end of the guy guard.*

It's that easy—your men don't have to be extra tall—there's no stretching for high bolts to tighten . . . the Mono-Bolt clamp securely grips the anchor rod with a firm 3-point gripping action . . . only a single wrench is needed. Easy installation makes for proper installation.

Heavy gauge steel guard is hot galvanized for long life and high visibility.

Mono-Bolt Guy Guard comes in half or full round construction, in 7 and 8 foot lengths. Fits any size rod from ½" to 1¼".

CG56-9



Phantom view of FULL-ROUND and cross section above shows how Mono-Bolt Clamp grips anchor rod and guy guard

A·B·CHANCE CO·

CENTRALIA, MISSOURI • San Francisco, Cal. • Pittsburgh, Penn.

THE Plant Man's Notebook

BY RAY BLAIN, TECHNICAL EDITOR

INDIANA BELL has installed, as an experiment, a drive-in telephone on Highway 40, about 15 miles east of Indianapolis. The "booth," consisting of a side and top shelter, is constructed of aluminum and is located 28 feet from the heavily traveled highway on a graveled drive.

The aluminum shelter protects the user during inclement weather, as the car window is opened and the handset with its retractable cord is pulled into the car to make the call. The dial and coin slot can be reached from the car window. A sign over the top of this booth is spotlighted and can be seen from either direction day or night.

•

The writer recently enjoyed the privilege of attending a two-day seminar on Electronic Data Processing Systems in the Remington Rand UNIVAC division of the Sperry Rand Corp. in New York City. This was indeed a wonderful experience and it was amazing to see the progress that has been made to-date in the field of electronic data processing.

There is a lot of speculation these days as to just what benefits the business world may expect from electronic data systems. We quote the following —printed some time ago in the *Harvard Business Review*—which it is believed summarizes the subject in a most understandable manner:

"Although the direct dollar savings are not to be dismissed lightly, we firmly believe that the most significant impact of the development of electronics for business is that it will bring about a profound change in what management will come to expect of its accounting and reporting systems.

"In the past, all the emphasis on reports for management has revolved around the summarization of transactions that have already transpired—in other words, historical reporting. In a very real sense, management has been driving down the business highway using only the rear-vision mirror.

"Had the tools been available with which to prepare timely projections and forecasts as a guide for future operations, the business executive would have been in the position of looking through the windshield and using the rear-view mirror of historical reporting only as a means of correcting any distortion in the forward look."

It is the coming use of the computer as a management control medium which explains and underlines the real significance of electronics for application to business.

It is quite obvious that operating telephone companies will be faced with the problem of data communication in the not-too-distant future.

Due to the present trend of large business concerns to decentralize their activities and maintain small plants in various sections of the country, it will be necessary to connect their various computer units to one control point. It has even been suggested that some forms of data transmission may require a sending speed of 1500 characters per second.

There is little doubt that many video channels will be required for this type of transmission. However, it is likewise true that an effort should and will be made to confine as much of the data transmission as possible to regular voice channels.

•

A new magnetic material that promises to revolutionize the use of permanent magnets has recently been developed. The material, virtually 100 per cent pure manganese-bismuth, is said to be 10 times more resistant to demagnetization than any permanent magnet now in use.

The new magnetic material can also be embedded in a plastic and then cut, drilled, or shaped in any size desired.

•

We enjoyed the experience recently of riding the Pennsylvania Railroad's new train, "The Keystone," from Washington, D. C. to Philadelphia. This all-aluminum train is unique in that you walk up steps on entering in the normal manner and then walk down steps to get into the center of the coaches.

There are some seats on the high section of each coach at the ends over the trucks. The center seats are underslung and down near the tracks. This provides a low center of gravity and there is no perceptible sway even when taking a sharp curve at a high speed.

•

We are reliably informed that the new type of telephone referred to by various names, such as "hands-free," "no hands," "loud speaker type," etc., is making a big hit with its users everywhere.

Personally, we have found this type to be extremely useful when talking over the telephone and referring to papers at the same time. We never could successfully balance a handset on one shoulder and refer to papers with both hands. This new type telephone, in our opinion, proves conclusively that man does not require a third hand.

•

Army Signal Corps key depots throughout the United States and The Signal Supply Agency in Philadelphia have recently been connected together by the use of an electronic data transmission system. This network will speed up the reporting of logistic requirements.

The entire process involving the interchange of requirements and stock records is handled electronically by transceivers during the night. The same circuits are used during the day for ordinary telephone communication.

The depots involved in this system are located at Sacramento, Cal., Decatur, Ill., Lexington, Ky., and Tobyhanna, Pa.

XUM

SOMETHING NEW

SOMETHING BETTER

WB

PARALLEL DISTRIBUTION WIRE

Two parallel extra high strength Copperweld conductors insulated with WB special tough, black polyethylene compound for long life under all conditions.

For better service and greater economy WB Parallel Distribution Wire is designed for use in rural areas in place of open wire.

WB Parallel Distribution Wire gives better service because it provides better transmission qualities and its tough polyethylene jacket protects the conductors from the many conditions that harm open wire.

WB Parallel Distribution Wire is economical because it can be installed with minimum labor, the need for cross arms is eliminated. It may be used to extend runs of rural distribution wire where only one, two, or three pairs are required. The extra high strength Copperweld conductor permits long span construction which also makes this wire ideally suited for drop runs to service subscribers at distances from main pole lines.

In locations where atmospheric conditions are detrimental to open wires, such as on the sea coast, polyethylene insulated WB Parallel Distribution Wire is unaffected.

Available in #14 AWG and .080" extra high strength 30% conductivity, Copperweld conductors insulated with the same high molecular weight polyethylene jacket used on WB TELECABLE, assures long, economical service life.

INDEPENDENT

WB HAS that which so many others have yet to gain . . . EXPERIENCE

Well Built Wires Since 1899

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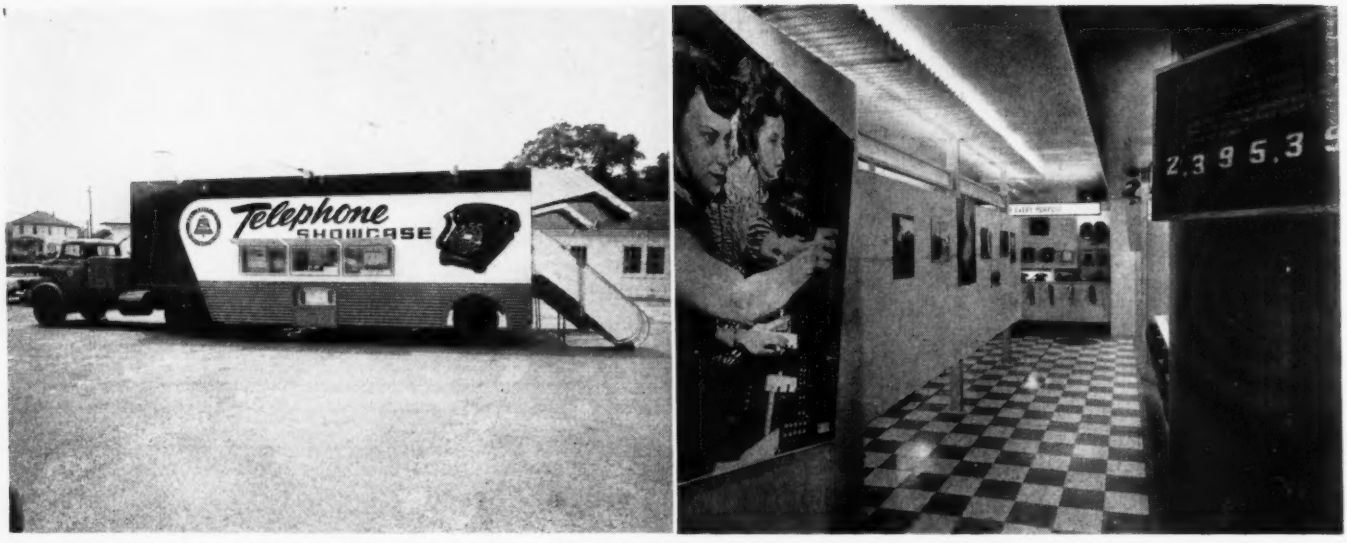
WHITNEY BLAKE COMPANY

NEW HAVEN 14, CONNECTICUT



(Left) New Jersey Bell's educational and merchandising exhibit on wheels will go the rounds of local fairs and exhibits nine months of the year. It is specially designed, measuring 32 by 8 feet, with expandable sides. The interior, which may be heated or air conditioned, has nine exhibits, including a television display. (Right) Interior, to right of center partition.

Unique Exhibit Truck Tours New Jersey Bell Area

The New Jersey Bell Telephone Co. has come up with one of the most spectacular exhibits ever sponsored by a Bell System company.

Telephone Showcase—a telephone exhibit on wheels soon will be making the rounds of exhibits and fairs throughout the state.

The showcase is a wrap-up of the company's prime educational and merchadising exhibits, housed in a huge tractor-trailer. The truck was built to New Jersey Bell specifications by the Gardner Display Co. of Pittsburgh, Pa.

It is one of the most unique vehicles ever put into the exhibit field, in that it was designed from the chassis out for the specific purpose for which it is being used, unlike trucks and buses which have been "converted."

On the road the trailer measures 32 by 8 feet. Parked for exhibit purposes, the sides move out on tracks four feet on either side providing a fully enclosed exhibit space measuring 30 by 15 feet. Aluminum gang-plank type stairways fold out from the rear of the trailer to provide entrance and exit facilities.

The nine exhibits, all of which are permanent installations, are so arranged that they are not affected by the inward and outward movements of the expandable sides. Five of the exhibits are equipped with six telephones each, on which visitors can listen to a recorded explanation.

One of the displays explains the role played by the Bell System in network television shows. While visitors look at the display a strategically-placed television camera picks up their image and flashes the picture on a TV screen. The same picture is carried to a screen in one of three display case type windows outside the truck so that visitors waiting to enter can see what is going on inside.

The truck, which will be on the road nine months of the year, is heated and air-conditioned depending on the weather. It is drawn by a custom-built tractor.

The interior lighting, heating and air-conditioning is designed for use of commercial power but a 25,000-volt generator mounted behind the cab of the tractor will supply power where commercial power is not available.

The traveling showcase is designed to supplement New Jersey Bell's regular open house program which enables telephone customers to visit their local

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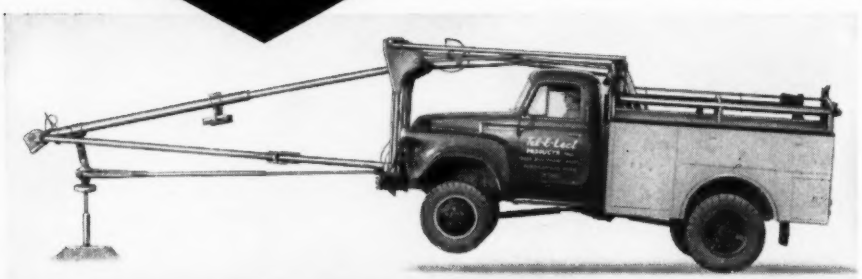

TEL-E-LECT PRODUCTS INC. 10007 Minnetonka Blvd. Minneapolis 26, Minnesota

telephone central office and see what lies behind their telephone service. More specifically, the truck will be used in those areas where an open house program would prove impractical.

Northington Buys Majority Of S. C. Company Stock

A major share of the stock in the Thermal Belt Telephone Co. of Tryon, N.C., has been purchased by George Northington of Sarasota, Fla., from Morris Pucketts of Asheville, N.C.

Mr. Northington, who has had some 40 years of experience in the telephone field, plans to move to Tryon from Sarasota to devote his full time to his new interest. He also owns the St. Matthews (S.C.) Telephone Co.

Under the new management of the Thermal Belt Company, the board of directors will include Mr. Northington; R. F. Nickells of St. Matthews; Dr. Marion C. Palmer, C. O. Stevens, L. P. Barnette and Harrison Bridgeman, all of Tryon; and Monroe Redden of Hendersonville, N. C.

Telephone Employes Bring Aid to Ohio Woman

An elderly Youngstown, O. woman, Louise Hamilton, living alone, was suddenly taken ill in her home, it was reported on Aug. 16. Having a telephone at her bedside, she dialed the operator and asked for her help.

Youngstown's operator Sally Washington and service assistant Mildred Fitz called Mrs. Hamilton's doctor and a friend. Help arrived within 15 minutes.

On recovering, Mrs. Hamilton wrote a letter saying, "Thank God I have a telephone at my bedside, and thanks for the wonderful operators at the telephone company."

First Step in International Automatic Network Installed

Belgium in May put into service the first automatic telephone system to operate over an international border. The system connects Brussels with two Parisian zones, with Lille, and with Roubaix.

Plans are under way for extending the service to Luxembourg and the Netherlands as the next step toward developing an international automatic network.

Improves Telephone System

The Telephone Administration of Buenos Aires, Argentina, announced on Aug. 3 that 40,000 new lines will be added to the Buenos Aires telephone network as part of a general improvement program.

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Easily handled Transite Ducts with J-M Plastic couplings go in quickly in shallower, narrower trenches.

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- **Narrower, shallower trench**
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- **Longer duct length—10 feet**
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Courts and Commissions

Lincoln Company Plans Stock Issue

The Lincoln Telephone & Telegraph Co. on Aug. 13 asked permission of the Nebraska Railway Commission to issue and sell 6,653 shares of its common stock at $40 per share. Holders of the stock would be issued rights for the purchase of one share for every 30 shares of stock held.

The funds will be used to retire short-term bank borrowings and for routine growth and improvements. The company now has 199,601 shares of common stock outstanding and 300,000 shares authorized.

N. Y. Independent Gets Increase In Rates

The New York Public Service Commission on Aug. 14 accepted a tariff amendment filed by Midstate Telephone Co., Inc., designed to increase rates by an estimated $49,750 effective Aug. 15. For some company subscribers, this is the first rate increase in 28 years.

The company, which was formed by a merger of four separate companies in 1951, serves about 5,100 telephone stations through automatic offices in Manlius, Central Square, Brewerton, Munnsville and West Winfield. Ten years ago, when the present management assumed control of the four component companies, it served only 1,500 stations. During the last decade its plant investment has increased from $150,000 to 1 million dollars and the four exchanges previously providing manual service have been converted to automatic operation. In 1953, the company also provided toll-free service for subscribers of its Manlius exchange to the Syracuse and Fayetteville exchanges of New York Telephone Co.

Present rates for its Central Square, Brewerton and West Winfield exchanges have been in effect since 1928, for the Munnsville exchange since 1939 and for the Manlius exchange since 1953.

In filing its new tariff, the company reported that additional revenues were necessary to offset recent increased operating expenses. The new monthly line rates for its Manlius exchange are the same as those charged by New York Telephone Co. in Syracuse and are as follows: Residential service, individual line, $5.25; four-party and rural lines, $3.60. Business service, flat rate individual line, $14.25; message rate individual line, $7.00; rural line, $5.60.

New rates for the other exchanges are as follows: Munnsville and West Winfield exchanges: Residential service, individual line, $4.25; four-party and rural lines, $3.00. Business service, individual line, $6.25; four-party and rural lines, $4.50. The West Winfield rates include toll-free service to the Leonardsville office of Chenango and Unadilla Telephone Company. The present handset surcharge for subscribers of the Munnsville exchange will be discontinued.

Central Square and Brewerton exchanges, between which toll-free service is provided: Residential service, individual line, $4.75; four-party and rural lines, $3.25. Business service, individual line, $7.25; four-party and rural lines, $5.50.

Tennessee Bell Rate Case Sent Back to Court

Southern Bell Telephone & Telegraph Co.'s legally-snarled rate case in Tennessee was returned to Chancellor Thomas W. Steele on Aug. 9 by the Tennessee Public Service Commission (TELEPHONY, Aug. 18, p. 38).

Steele had remanded the case to the commission July 17 so additional evidence in support of Southern Bell Telephone & Telegraph Co.'s plea for a rate increase could be heard. In a new order, the commission declared there is no legal basis to support the chancellor's action.

"The remand by decree of the honorable chancellor . . . must, therefore, be refused as being beyond the scope of the statutes providing for a remand to this commission," the order declared.

The commission called the chancellor's remand "actually an entirely new rate proceeding" but added that it failed to find "any provision in the Tennessee code providing for the institution of a rate application through the process of a remand from any court."

Steele had sought to reopen the case after Southern Bell amended its long-pending petition to ask that 6.1 per cent rate of return granted by the state commission be up-dated to apply to the 12-month period through last March, instead of the calendar year 1954.

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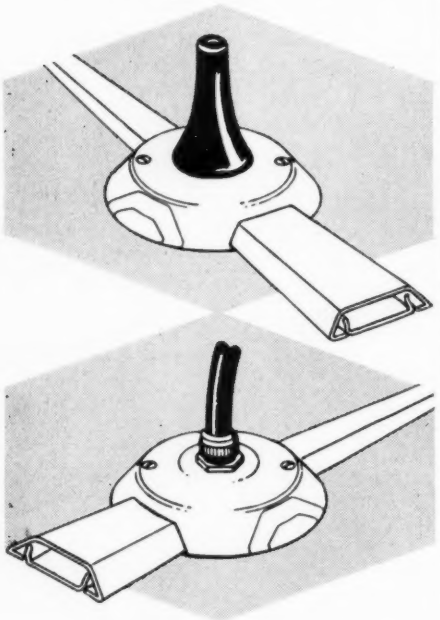

Wiremold engineers have developed a new replaceable rubber nozzle for the 1524 and 2642H fittings. Now, whenever conditions warrant, the rubber nozzle can be removed on the job and replaced by a B-station tubing connector No. 1582T. It eliminates the need for bringing extra fittings to the job and helps make overfloor communications wiring easier and faster.

Wiremold engineers are constantly working to make the PANCAKE overfloor duct system the most versatile telephone wiring system available.

The WIREMOLD Company
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The company's original plea, filed Nov. 10, 1954, asked for a 9.8 million dollar annual increase from intrastate rates.

Following lengthy hearings, the commission granted a $2,996,000 annual increase effective last Feb. 15.

The company then went into chancery court and asked for an additional $4,070,000 to be put in effect immediately under bond. Chancellor Steele rejected this request last Apr. 23.

Two New York Companies Receive Higher Rates

The New York Public Service Commission on Aug. 16 accepted a tariff amendment filed by Orange County Telephone Co. designed to increase rates by an estimated $99,800, effective Sept. 1.

In filing its new tariff, the company reported its operating expenses for the next 12 months will exceed those of 1955 by more than $185,000, largely due to recent wage increases and higher taxes, and that the additional revenues it seeks are necessary to enable it to continue adequate service. The company serves more than 16,000 telephone stations through its principal office at Middletown, and community automatic offices in eight other localities. Toll-free service is provided systemwide.

The New York commission on Aug. 16 also accepted a tariff amendment filed by Clymer Telephone Co., Inc., designed to increase rates for each type of service by 25 cents monthly. The company serves about 600 telephone stations.

In seeking the rate increase, the company said the $1,800 additional revenue is necessary to offset increased operating expenses and to enable it to continue adequate service. The new rates become effective Sept. 1.

General of Indiana Buys Cooperative

General Telephone Co. of Indiana, Inc., has purchased the Ripley Farmers Cooperative Telephone Co., according to an announcement by L. H. Meyer, president of General Telephone.

The Ripley Farmers company consists of approximately 1,400 telephones of magneto operation in the communities of Carthage and Morristown. The Indiana Public Service Commission approved the purchase by General on June 8, 1956.

Mr. Meyer announced that there will be no changes in personnel in the Carthage and Morristown exchanges. He also announced that engineering work has been started for the complete overhauling of the telephone equipment in the two exchanges and the eventual installation of dial operated telephones. No date has been set for the conversion of the telephones to dial.

N. C., S. C. Co-ops Organize To "Protect" Interests

Representatives of telephone cooperatives in North and South Carolina organized the Tri-State Association of Rural Telephone Cooperatives at a meeting at Greensboro, N.C., on Aug. 16 and said that Virginia telephone membership firms have been invited to join the group but had no representatives at the meeting.

L. A. Edwards of Clinton, N.C., was elected president of the group, which, it was said, was organized to take legal steps "in protecting" the interests of the cooperatives as a result of a recent North Carolina Utilities Commission ruling that such memberships do not have exclusive rights in their areas and that commercial firms may serve nonmembers if it is advantageous for both the companies and their new customers (TELEPHONY, May 5, p. 32; Aug. 18, p. 34).

The group authorized Mr. Edwards to arrange a conference with Gov. Luther H. Hodges of North Carolina "for the purpose of outlining the purposes and problems" of the cooperatives. If the conference is held, the association's attorney, and representatives of the North Carolina Farm Bureau and the State Grange will attend.

The North Carolina commission recently ordered Central Telephone Co. to provide service for seven Randolph County residents over the protests of the Randolph Telephone Membership Corp., which has plans to serve the area in question and contended that the commission had no jurisdiction in the matter. The seven residents, nonmembers of the cooperative, asked that the commercial company be directed to serve them since the cost would be less. The commission in its ruling, while stating that it had no jurisdiction over the rural cooperatives, said it did have jurisdiction over commercial companies and is concerned with the best interests of the public.

The newly-organized association of cooperatives authorized its officers to take necessary legal steps, but did not reveal just what the steps would be. It has been indicated that the commission's decision may be appealed to the courts.

Eight North Carolina telephone membership cooperatives represented at the meeting who became members of the new group are: Tri-County of Belhaven,

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Atlantic of Shallotte, Lower Cape Fear of Elizabethtown, Cumberland-Sampson of Clinton, Yadkin Valley of Yadkinville, Surry of Dobson, Wilkes of North Wilkesboro and Cherokee of Banner Elk. The Sandhills Telephone Membership Cooperative, Jefferson, S.C., also joined the association.

Approve Employe Stock Purchase Plan in N. C.

Carolina Telephone & Telegraph Co., Tarboro, was authorized by the North Carolina Utilities Commission on Aug. 15 to sell up to 12,000 shares of $100 par value common stock to its employes on an installment basis and at 83 per cent of the market price on the last business day of the month on which payment is completed but in no case at more than $150 or less than $100 per share.

Under the stock purchase plan, employes will be entitled to buy one share for each full $500 of annual income. They may buy less than their quota but will be limited to buying 50 shares each under the plan. Those who use the installment system will be charged interest of 3 per cent compounded semi-annually.

The commission in its order said that the plan will not only provide additional capital for the company but will be "an effective incentive for employe participation in stock ownership" and will promote interest of employes in the successful operation of the company.

Two N. D. Companies Given Permission to Consolidate

Joint application for a merger of the Nome Telephone Co. and the Inter-Community Telephone Co. which operates exchanges at Alice, Buffalo, Fingal, Wheatland, Dazey and Hannaford, has been approved by the North Dakota Public Service Commission, it was reported recently.

The Nome concern serves 179 subscribers in and around Nome while Inter-Community serves 529 subscribers.

To Hear Service Complaints About N. C. Independent

The North Carolina Utilities Commission is scheduled to hold a hearing on Sept. 5 on complaints regarding service of the Pender Telephone Co., Burgaw, which have been labeled by the owner of the company as just more attempts "to get my territory away from me."

The owner, Mrs. J. B. Waddell, said that the exchange is providing its area with adequate service and is engaged in a program of expansion. The exchange when she and her husband purchased it in 1923 had only 23 telephones, she said; at the present time its serves 555 and the number is expected to reach approximately 600 by "early fall."

The Junior Chamber of Commerce at Burgaw has gone on record as stating that telephone service in Pender County and Burgaw is "inadequate and unsatisfactory" and is endorsing efforts of the Rural Telephone Committee of Pender County in its efforts to start a membership cooperative in the county.

S. D. Commission Approves Purchase of Exchanges

The South Dakota Public Utilities Commission Aug. 14 approved the Deuel Telephone Cooperative Association's acquisition of exchanges of three other companies.

Among them was acquisition of the Lincoln County Telephone Co., operating an exchange at Lake Benton, Minn.; the Sokota Automatic Telephone Co. exchanges at Estelline, Toronto and White and the Sioux Valley Telephone Co., Elkton.

S.W. Bell to Buy Mo. Company

Southwestern Bell Telephone Co. officials recently received word that the Federal Communications Commission has approved the company's purchase of the properties of the Strafford (Mo.) Telephone Co.

Ill. Co. Asks Rate Change

The Palestine Telephone Co. has asked the Illinois Commerce Commission for a change in rates and classification for telephone service in the area served by its Birds exchange, it was announced recently.

Wis. Company Gains Raise

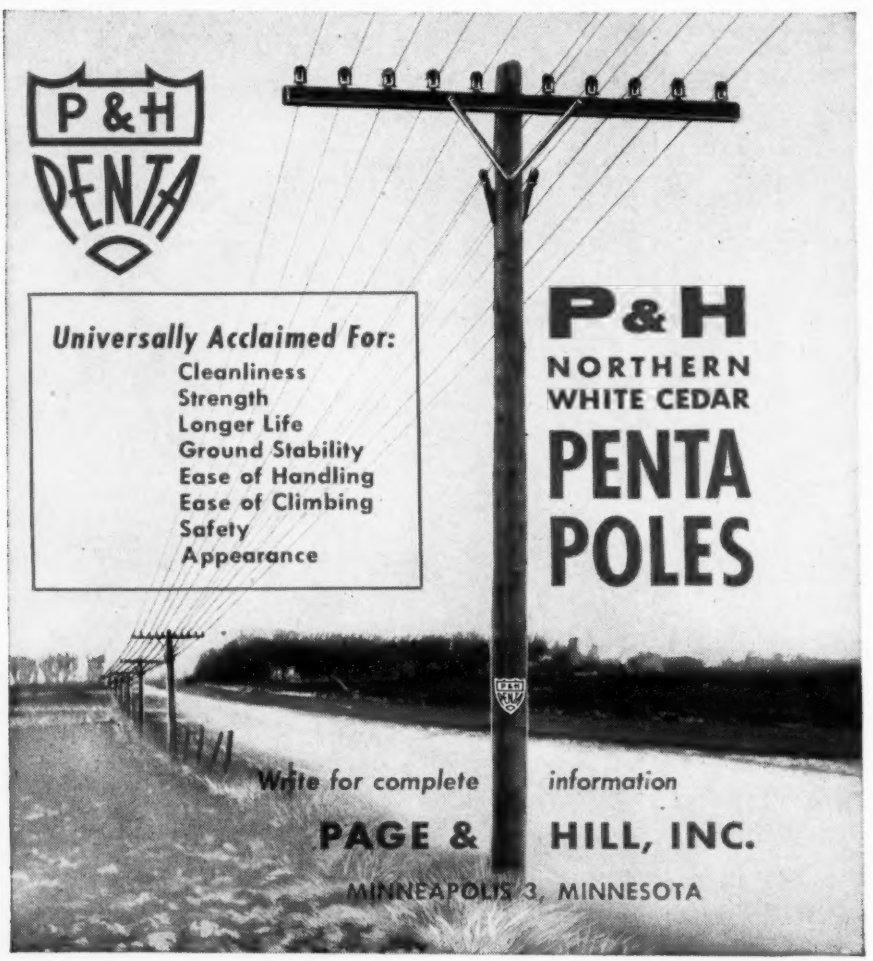
A $2,195 annual rate increase was granted the Independence Telephone Co. recently by the Wisconsin Public Service Commission, it was reported.

Obituaries

CHRISTIAN E. EABY, 74 of Ephrata, Pa., president of the Denver & Ephrata Telephone & Telegraph Co. and a veteran of nearly 60 years in the telephone industry, died Aug. 11 in an Ephrata hospital, following a prolonged illness.

Mr. Eaby began his long career in communications in 1899, as a groundman for the old Pennsylvania Telephone Co., now part of the Bell Telephone Co. of Pennsylvania.

In 1911, he accepted the position of manager of the newly-organized Independent Telephone Co., predecessor of the Denver and Ephrata company,



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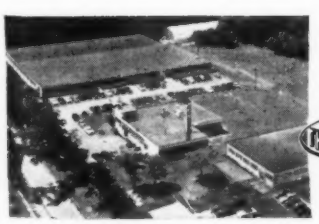

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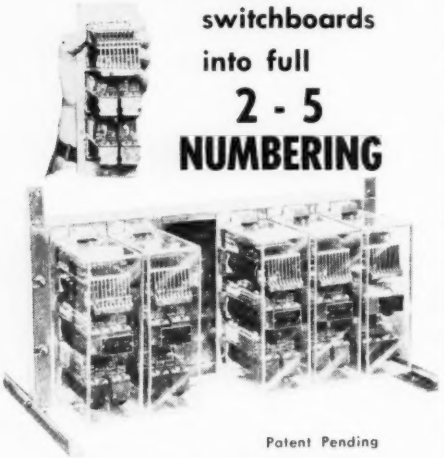

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founded by the late William F. Brossman and a group of Lancaster County businessmen.

Serving 220 subscribers in 1911, the company advanced under Mr. Eaby's management until today it operates five exchanges, serving 15,371 subscribers.

Elected a director of the company in 1915, he was active in the unification of Independent telephone companies in Lancaster County in 1925.

Four years later, he was elected vice president and general manager, becoming president in 1944 and continuing as general manager.

Mr. Eaby successfully led the Denver and Ephrata company through three major physical changes. Started as a magneto system, the company operated with that equipment until 1926, when it was converted to common battery. In 1948, the company began a conversion to automatic, completing the conversion a year later.

Mr. Eaby was a past president and director of the Pennsylvania Independent Telephone Association. He remained a director at the time of his death.

He was a director of the Tri-County Telephone Association, made up of Independent companies in Lancaster, Berks and Lebanon counties of Pennsylvania, and was a member of the Independent Telephone Pioneer Association, and the Telephone Pioneers of America.

Mr. Eaby was born in Hatville, Pa. At the age of 16 he moved to Lancaster with his parents, living there until 1911, when he moved to Ephrata.

He was the husband of Mrs. Bertha Brossman Eaby, who worked with him in management as vice president of the Denver & Ephrata Telephone & Telegraph Co.

In addition to his wife, he is survived by a son, David, of Ephrata; a daughter, Mrs. J. Reed Berkheimer of Ephrata, and seven grandchildren.

*

ARTHUR E. BARTRUFF, 73, and Mrs. Bartruff, who operated the St. James (Mo.) Telephone Co., were killed on Aug. 8 when their car pulled out onto U. S. Highway 66 near St. James, and collided with a Greyhound bus.

*

D. E. RIORDAN, president of the Pulaski (Wis.) Merchants & Farmers Telephone Co. for the 27 years preceding 1953, and father of Ray J. Riordan, secretary of the Wisconsin State Telephone Association, died in Oshkosh on Aug. 16.

Six Engineers Promoted to Manager Posts at Lenkurt

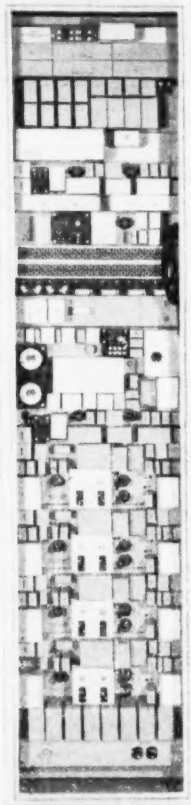
Six engineers at Lenkurt Electric Co., San Carlos, Cal., have been promoted to division managers in a reorganization and expansion of Lenkurt's engineering activities.

Maurice H. Kebby has been named manager of the development engineering division; Alan F. Culbertson now heads the product planning division; Dale Welling is manager of the equipment engineering division; Robert G. Carpenter manages the production engineering division; Lyle R. Groberg directs the technical reference division and William B. Farinon is head of the commercial projects division.

Five of the six new division heads have been with Lenkurt from 3 to 7 years. The exception is Mr. Farinon, who came to Lenkurt a year ago from Hawaiian Telephone Co. to head the manufacturing company's "Engineer, Furnish and Install" service. Originally organized in a department, that activity has been placed at division level as the result of increasing demand for "EF&I" service.

Enlightened View

"My poor are my best patients. God pays for them."—BOERHAAVE.



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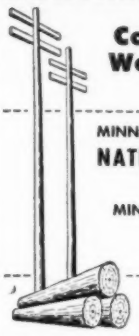
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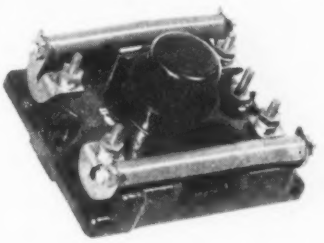
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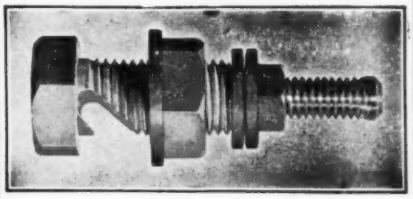

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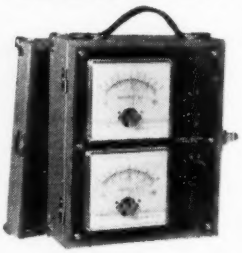

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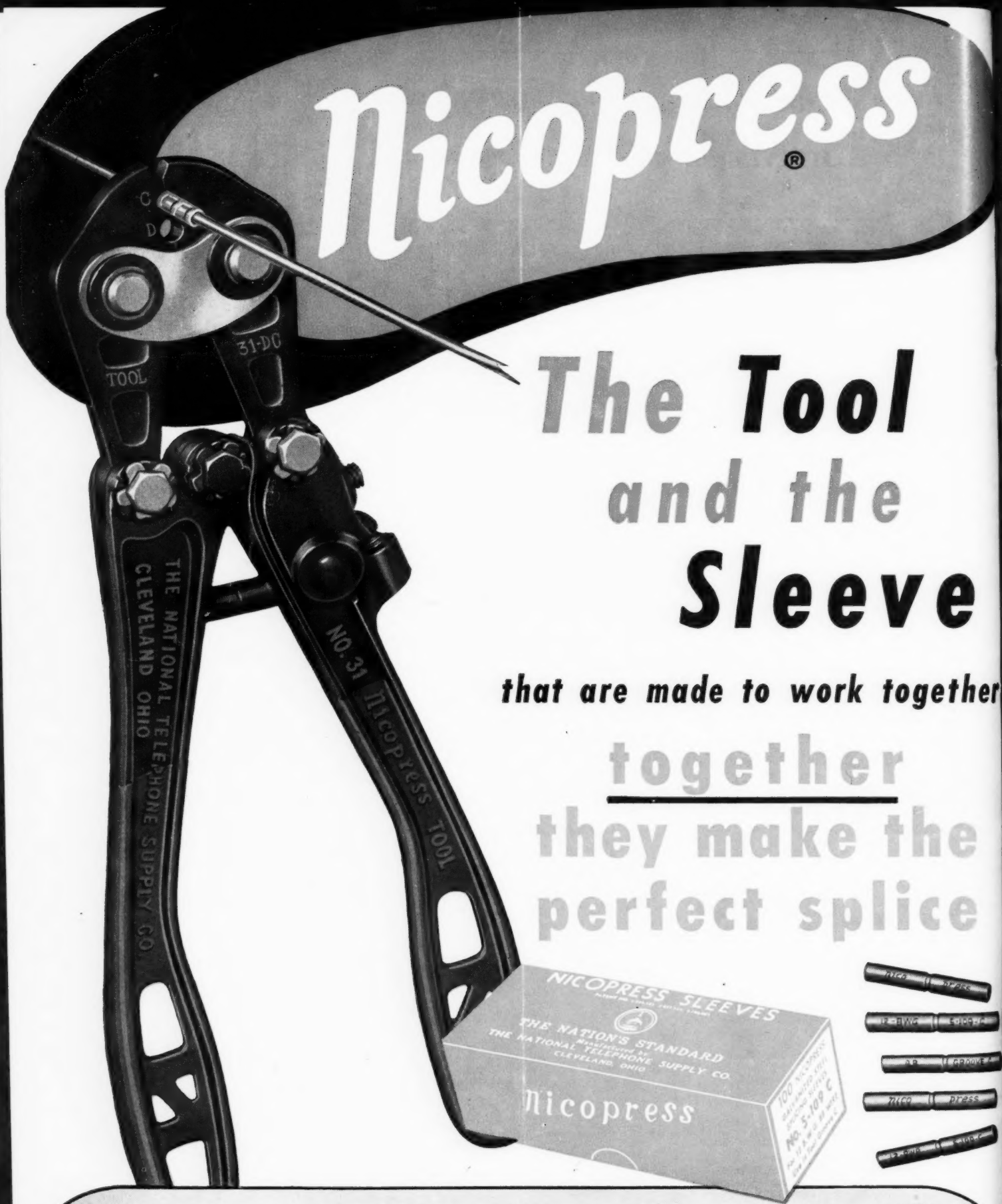

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